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ABSTRACT

This paper addresses questions concerning the purpose and effectiveness of existing child nutrition programs. Chapter I introduces the major budget issues concerning these programs. Chapter II presents the historical development of the programs and focuses on the federal policies affecting the nutrition and health of children. Chapter III describes the major categorical programs. Chapter IV discusses the growth in costs, the complex financing scheme of the current programs, and the shifting burden of program costs among the federal, state, and local governments, and participants, over time. Chapter V reviews the impact of the programs on the agricultural sector, and analyzes the nutritional impact of the various child nutrition programs. This chapter also includes an analysis of child nutrition data from the first national Health and Nutrition Examination Survey. The cost and potential nutritional impact of alternative policies is presented in Chapter VI. Appendices include information on food distribution authorization legislation, biochemical analyses of children's diets, and expenditures and nutrient intake for child nutrition programs. (Author/SS)

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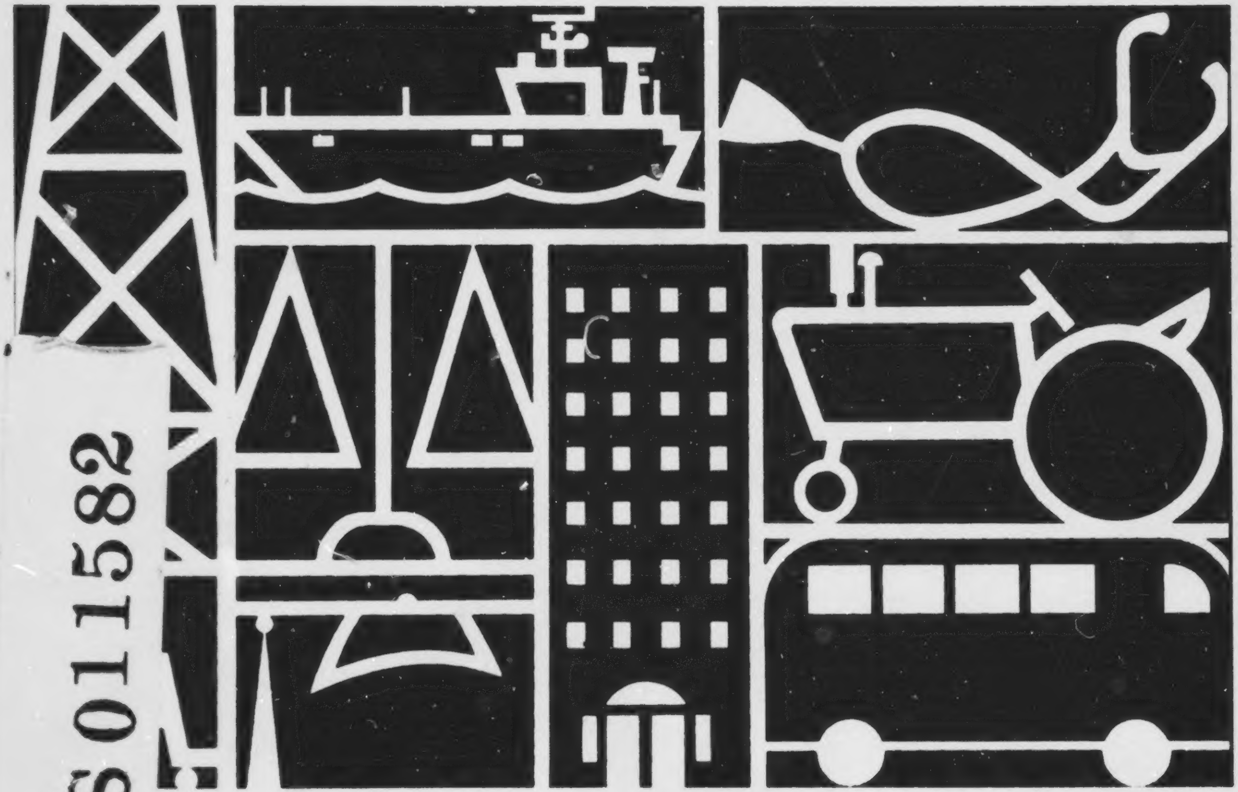

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Congress of the United States

FEEDING CHILDREN:
FEDERAL CHILD NUTRITION POLICIES IN THE 1980s

The Congress of the United States

Congressional Budget Office

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PREFACE

The health and nutrition of the nation's children has long been an issue of public concern. This is reflected in the growth of federal expenditures for child nutrition programs, especially since the late 1960s. As the decade of the 1980s begins, however, these programs are receiving increased public scrutiny. The Congress may wish to consider ways of reducing federal child nutrition expenditures, or of shifting resources among programs so as to maximize the effectiveness of the federal effort.

This report was prepared at the request of the Senate and House Committees on the Budget. The report reviews the various federal child nutrition programs and addresses the complex questions related to their nutritional effectiveness. Alternative proposals to address the nutritional needs of children are also discussed.

The paper was prepared by G. William Hoagland under the supervision of David S. Mundel, Assistant Director of the Human Resources and Community Development Division of the Congressional Budget Office. T. Scott Thompson and Lynn Paquette provided essential technical and computer assistance. A number of persons provided invaluable advice, including George Braley, Thomas Buchberger, Eugene Conti, David DeFeranti, Frank G. Gatchell, Jean Yavis Jones, Deborah Kalcevic, Richard Liberman, Betty Peterkin, and Robert Reischauer.

Francis Pierce and Robert L. Faherty edited the manuscript, assisted by Mary Anders. The several drafts were typed by Andy McDonald-Houck.

Alice M. Rivlin
Director

May 1980

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SUMMARY

Public and private expenditures for child nutrition programs have grown from about $2.4 billion ten years ago to $8.1 billion in fiscal year 1980. Federal expenditures for these programs have grown from $750 million to over $4.7 billion in the same period. The federal outlay represented 25 percent of total expenditures on child nutrition programs in 1969, and nearly 50 percent in 1980. If current policies are continued, federal child nutrition support will reach about $7.1 billion in fiscal year 1985.

CURRENT FEDERAL PROGRAMS

Shifting federal policies have resulted in an array of child nutrition programs. The largest of them is the national school lunch program (NSLP), which reaches over 27 million children on an average school day--60 percent of all children enrolled in elementary and secondary schools. About $3.1 billion or 65 percent of all federal child nutrition expenditures will support the NSLP in fiscal year 1980.

Although the NSLP is the largest federal program, it is not the most rapidly growing one. Today there are nine other major child nutrition programs that either provide food directly to families with children or subsidize meals, food service equipment, and nutrition education programs. These programs (in general order of cost) are the special supplemental food program for women, infants, and children (WIC), the school breakfast program, the child-care food program, the special milk program, the summer food service program, a program covering state administrative expenses for child nutrition activities, an equipment assistance program, the commodity supplemental food program, and the nutrition education and training program. These non-NSLP programs are funded almost entirely by federal funds and are likely to receive increased outlays in the 1980s (see Summary Figure).[1]

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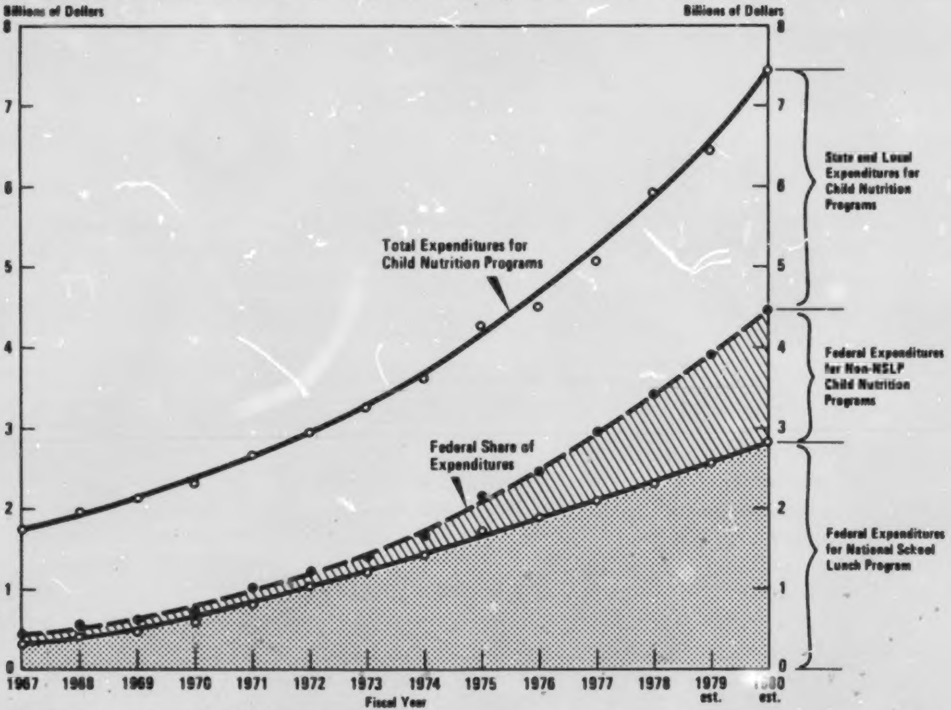
[1] The federal government also affects the nutritional and health status of children indirectly through various public assistance programs (including the food stamp program); through (Continued)

Summary Figure.
Growth in Expenditures for Child Nutrition Programs, Fiscal Years 1967-1980



SOURCE: Congressional Budget Office; see Appendix Table 1.

The ten categorical child nutrition programs are administratively complex. The decade of the 1970s saw a major shift in funding the majority of the programs--away from the traditional grant-in-aid concept to a statutorily defined reimbursement formula for various types of services provided within a state. Today the programs serve different categories of children, provide different types of benefits, and are administered locally by a wide variety of civic, health, and school organizations (see Summary Table 1). While not specifically defined as entitlement

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1. (Continued)
federal grants for social services and child health and welfare services covering child day care, Head Start, and foster care activities; and through nutritional research, monitoring, and regulation.

SUMMARY TABLE 1. CHILD NUTRITION PROGRAMS, PARTICIPANTS, AND FEDERAL COSTS IN FISCAL YEAR 1979

Program	Targeted Population	Type of Benefit	Number of Participants (in millions)	Average Subsidy per Participant (in cents)	Costs (in millions of dollars)
National School Lunch	School-age children (under 21 years of age) enrolled in schools or residential child-care institutions	Cash subsidies and commodities	27.3	62 per meal	2,693.5
School Breakfast	School-age children (under 21 years of age) enrolled in schools or residential child-care institutions	Cash subsidies and commodities	3.4	40 per meal	215.0
Child Care Food	Children under 19 years of age in nonresidential child-care organizations	Cash subsidies, commodities, and equipment assistance	0.7	42 per meal	151.0
Summer Food Service	Children under 19 from areas of poor economic conditions for months May through September	Cash subsidies and commodities	2.9	92 per meal	148.5
Special Milk	Children under 21 years of age in schools, residential child-care institutions, and summer camps	Milk subsidies	8.0	8 per half pint	142.0

(Continued)

SUMMARY TABLE 1. (Continued)

Program	Targeted Population	Type of Benefit	Number of Participants (in millions)	Average Subsidy per Participant (in cents)	Costs (in millions of dollars)
Special Supplemental Food Program for Women, Infants and Children (WIC)	Low-income pregnant, postpartum, and breastfeeding women, and their infants and children up to age 5	Food vouchers and commodities	1.5	27 per meal	550.0
Commodity Supplemental Food	Low-income infants, children, and women certified vulnerable to malnutrition	Commodities	0.1	19 per meal	19.5
Nonfood Assistance (Equipment)	Schools and residential child-care institutions	Cash grants	2.9	--	24.0
Nutrition Education and Training	Children in schools and child-care institutions	Cash grants	--	50 per child per year	27.9
State Administrative Expense	State administrative employees	Cash grants	--	--	32.0

programs, they are widely regarded as such, and are administered and funded as if they were entitlements.

FARM POLICIES AND NUTRITION PROGRAMS

The federal child nutrition programs were once closely related to federal farm policies, helping to provide outlets for surplus agricultural commodities. The programs' administrative and financing systems still reflect those early objectives. Over the last decade, however, the programs have changed so that they provide less direct support for the agricultural sector. Today, schools and other outlets are assured a prescribed level of assistance, in commodities or in cash, and can make plans on the basis of these guarantees. Commodity assistance, therefore, may merely substitute for what would otherwise have been purchased by these organizations.

Child nutrition food expenditures probably have a minor impact on gross farm income. In 1978, they may have translated into an additional $1.9 billion, or about 1.5 percent, of total gross farm income. A few specific commodities, such as canned peaches and turkeys, however, may receive substantial market support from the programs' commodity purchases.

Today the major goal of the federal child nutrition programs is to improve the health and well-being of the nation's children. Federal subsidies are provided to all income groups, the objective being to increase program participation and thereby improve nutritional status. Larger subsidies are generally provided to lower-income groups thus offering both a direct form of nutritional support and indirect general income support.

EFFECTS OF THE CHILD NUTRITION PROGRAMS

Hunger and severe malnutrition are not widespread public health problems in the United States today. Some children, to be sure, have inadequate diets and suffer related health problems. Some diseases of adults—for example, heart disease, stroke and hypertension, diabetes, arteriosclerosis, and cirrhosis of the liver—may result from poor nutritional problems during childhood. The federal expenditures on children's nutrition programs are sometimes described as long-term investments in public health.

It is difficult, however, to say what effect the child nutrition programs may have on the general level of health. Few studies have been conducted on a national basis to measure their impact, especially over the long term. Existing evidence suggests the following:

- Iron-deficiency anemia appears to be the primary child nutrition problem today, and special supplemental food programs such as the WIC program appear to have greater impact on this problem than do the institutionalized feeding programs;
- Children who participate in the school lunch program do not have lower rates of iron-deficiency anemia than children who do not participate in any federal feeding program;
- Children who participate in only a school breakfast or milk program show a positive and slightly significant increase in the adequacy of their diets;
- In general, the nutritional status of children who participate only in the NSLP does not appear to be better than that of the nonparticipating children, but lower-income children receive slightly more nutritional intake than higher-income children from the program; and
- The nutritional impact of participating in more than one program appears mixed. High-income multiple-program participants have no better diets than high-income single-program participants; but for low-income children, the combination of a breakfast and a lunch program appears to provide more nutritional benefit.

The school feeding programs appear to be significantly more effective in improving the nutrition of low-income children than direct money payments to their families, except in a few instances. Based on limited data, the school breakfast program appears to be the least costly and the most beneficial, regardless of the income of the participant. Because it has a relatively low federal subsidy and a markedly greater nutritional benefit, its cost-effectiveness is high.

POLICY ALTERNATIVES

Two kinds of reforms are possible in the child nutrition programs--broad, comprehensive changes and incremental changes in particular programs. Because comprehensive reforms require the resolution of large policy issues, program-by-program incremental reforms may be the major form of change in the 1980s. Incremental program changes can be made in ways that are not inconsistent with a goal of unified child nutrition policymaking, but to do so requires careful planning.

Comprehensive Reform Strategies

Comprehensive reform proposals include the following:

- Measures to Correct Market Imperfections. These measures would seek to lower the prices of foods by increasing competition among producers and distributors. Federal marketing orders, import restrictions, and regulations governing the transportation of specific commodities, result in higher prices and lower consumption of key nutrients. Specifically, if the prices of dairy products were not maintained at artificially high levels by marketing orders, low-income children might be able to consume more of these nutritionally important products.

- Block Grants. Collapsing the multitude of existing programs into a block grant program that would allow states and local administrators to implement specific intervention programs has been proposed in S. 605, the Food and Nutrition Program Optional Consolidation and Reorganization Act. If all states chose to consolidate, federal costs would increase by about $500 million in 1983. The potential nutritional impact of a block grant proposal on children is uncertain and depends primarily on the ability of the individual state to conduct meaningful assessments of nutritional needs.

- A Universal Free Lunch. The expansion of the National School Lunch Program to provide free meals to all children has been proposed in the past. This would increase federal costs by about $4.3 billion. Because participation would increase largely among middle- and upper-income children, the nutritional impact would be small.

- Program Overlap. A proposal to reduce federal nutrition expenditures has been introduced by Senator Helms in S. 2360. This plan would reduce the amount of food stamp benefits a household could receive, based on the number of children in the household that also received federally subsidized school lunches. An estimated 6.8 million children receive either free or reduced-price lunches and also reside in food stamp households. This proposal would reduce federal costs by nearly $630 million in fiscal year 1981. The proposal would also reduce overall nutritional subsidies for the one income group that some evidence suggests is most benefited by these programs.

- Elimination of Non-Needy Subsidies. A proposal that would achieve large budgetary savings and not have potentially adverse effects on children's nutritional status would be the elimination of all federal subsidies to children from families with incomes above 195 percent of poverty. In fiscal year 1981 the federal government will provide an annual subsidy of approximately $65 for high-income children participating full-time in a lunch program. Since little evidence exists that lunch participation improves the diets of these children, the subsidy becomes a form of direct income transfer. Eliminating the federal income transfer to nearly 16 million high-income children would result in federal savings of over $820 million in fiscal year 1981. If institutions chose to drop out of the programs given a drop in non-needy participation, the proposal could also affect needy children in those institutions. The proposal might also stigmatize low-income children if the program came to be viewed as more of a welfare program than a nutrition program. As it stands today, however, it might be considered a welfare program for non-needy children.

- Nutrient Fortification. Specific nutrients could be added to children's diets through targeted fortification schemes. Vitamin fortification could provide for 100 percent of a child's recommended dietary allowance for less than $3.00 a year in ingredient costs. Fortification might, however, raise the cost of the final product for all consumers; unless it was made mandatory, or the cost was absorbed by the government, cheaper unfortified products might then be purchased by the low-income groups fortification was designed to assist.

Incremental Reform Options

Incremental reform options are the type of legislative option most commonly discussed today. The options and combinations of options are endless, but one major alternative that would increase the nutritional effectiveness of the total federal child nutrition budget would be to target nutrition subsidies on lower-income groups and reallocate federal funds among the various programs. This proposal stems from the general finding that subsidies to higher-income groups, while potentially increasing program participation, show little evidence of improving the children's nutritional status.

The Administration's recent budget proposal is an example of the incremental program approach:

- The Administration's Proposal. The Administration has proposed that the national average payment to the school lunch program be reduced by 5 cents (from 18.9 to 13.9 cents) for all "paying" students (children from families with incomes over 195 percent of the poverty level). Between 720,000 and 1.5 million children would probably choose not to participate as a result of the increased student charge; total savings would be approximately $160 million. This proposal would not adversely affect the nutritional status of the children, since benefits are minimal. The reduction in federal subsidies might cause some schools to stop participating, and this would deprive lower-income children of benefits. Consequently, the Administration has proposed to reinstate the 5-cent subsidy should paid participation drop below 50 percent nationally.

  The Administration has also proposed changing the eligibility standards for other subsidies. Under current law, children from families with net incomes below 125 percent of the poverty level ($10,056 for a family of four in fiscal year 1981) qualify for free meals. Those from families with net incomes between 125 and 195 percent of the poverty level (up to $15,688 for a family of four) qualify for reduced-priced meals. The proposal would reduce the eligibility for free meals to children from families with net incomes at the poverty level, net of a standard deduction of $75 a month--$8,945 or 112 percent of the poverty level. Similarly, the standard of eligibility for reduced-price meals would be reduced to 175 percent of poverty net of a $75-a-month standard deduction--about $15,000 or 187 percent of the poverty level.

Savings of approximately $200 million in fiscal year 1981 could result from these changes in the income-eligibility standards. Overall, an estimated 500,000 children would choose not to participate.

- Cash-Out of Federal Commodities. Some evidence suggests that the costs of preparing school meals are reduced when schools receive cash payments instead of commodities. Replacing commodities with cash payments could reduce federal costs up to $300 million if the mandated minimum commodity assistance per meal were reduced in line with the lower cost of preparing a meal. In general, however, this proposal would result in minor reductions in administrative costs for federal, state, and local governments, and federal subsidies to various income groups would not change.

- Modification of WIC. The Special Supplemental Food Program for Women, Infants and Children appears to be nutritionally effective. Alternatives for expanding it have been considered by the Congress. If it were to become an entitlement program, participation eventually could increase to between 6 and 8 million, raising federal costs by nearly $3.6 billion. Less expansionary options could be considered that would merge the program with the Administration's 1981 proposal to extend Medicaid eligibility to all children from families with incomes below 55 percent of the poverty level, also including a state matching requirement for WIC funds.

- School Breakfast Expansion. The school breakfast program appears to be a nutritionally effective program. This is in part because the program is targeted on very low income groups. Only about 30 percent of all schools participate, however, and 25 percent of the children within these schools. Proposals to require all states that administer a lunch program to administer a breakfast program as well would cost approximately $500 million more in fiscal year 1981.

- Altering the Special Milk Program (SMP). The nutrients provided by milk are not generally lacking in children's diets. The elimination of the SMP in all schools that also participate in another federal program providing milk has been proposed several times. This could reduce the milk consumed in schools by 12 percent; most children would continue either to purchase milk or to receive milk through one of the other federal programs. Such a proposal could reduce federal costs by about $100 million in fiscal year 1981. Since the program appears to be more nutritionally cost-effective for the middle- and higher-income groups, an alternative to eliminating the program completely would be to eliminate the subsidy for lower-income groups. Most of those children would receive milk subsidies through the other programs.

o Nutrition Education. Less than 1 percent of the funds spent on child nutrition programs can be identified as targeted specifically on child nutrition education. The Administration's 1981 budget would reduce this proportion. Simply expanding federal nutrition education funding, however, may not lead to an improvement in the nutritional status of children. Little evidence exists one way or the other as to the effectiveness of nutrition education expenditures.

CHAPTER I. INTRODUCTION--THE BUDGET AND NUTRITION PROGRAMS

National expenditures for child nutrition programs have grown from $2.4 billion ten years ago to an estimated $8.1 billion in fiscal year 1980. The federal contribution to these programs has grown from $750 million to over $4.7 billion during the same period. The programs encompass a wide array of activities including: the national school lunch program, the breakfast program, the special milk program, child care feeding programs, summer feeding programs, special nutrition programs for vulnerable groups and children, and other programs.[1]

Fiscal Year 1981 Budget Issues

The major child nutrition budget issues in fiscal year 1981 will be whether to limit program growth and whether to target existing child nutrition programs on lower-income children. In addition, the authorizations for three child nutrition programs--the summer food service program, a nutrition education and training program, and a program providing federal funds for state child nutrition administrative expenses (SAE)--expire at the end of fiscal year 1980. While these three programs account for less than 5 percent of the total federal child nutrition expenditures, the need to consider their reauthorization provides an opportunity to review the programs as a whole.

The Past as Prologue

The stage for the 1981 debate was set during the fiscal year 1980 budget process. The Administration's fiscal year 1980 budget proposal called for a $500 million reduction in federal child nutrition spending. These savings were also assumed in the first budget resolution for fiscal year 1980, despite reservations

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1. The federal food stamp program provides benefits indirectly to children through increasing the food purchasing power of low-income households with children. The program, therefore, is not considered directly in this paper.

expressed by the relevant authorizing committees. The Senate Agriculture Committee in its recommendations to the Senate Committee on the Budget had assumed $200 million in savings, while the House Education and Labor Committee had assumed $50 million in savings in its recommendations to the House Committee on the Budget.[2]

Following the passage of the first resolution, the Congress adopted measures that achieved approximately $90 million in savings. Subsequently, the second resolution for fiscal year 1980 included assumed savings of $200 million, but the authorizing and appropriating committees did not adopt proposals that would achieve the additional $110 million in savings.

Similar efforts to reduce spending in the fiscal year 1981 budget are currently being debated. Both the Senate and the House have recommended, in the first concurrent resolution for fiscal year 1981, savings of approximately $500 million in these programs.

Plan of the Paper

Throughout the recent child nutrition debates, questions have been raised as to the purpose and effectiveness of the existing programs. Who receives federal benefits, who pays for the benefits, how much do recipients receive, and how do the child nutrition programs interact with other federally assisted programs?

The purpose of this paper is to answer these broader questions. Chapter II presents the historical development of the programs and focuses on the federal policies affecting the nutrition and health of children. Chapter III describes the major categorical programs. Chapter IV discusses the growth in costs; the

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2. In partial response to the Administration's 1980 budget proposal, Senate Resolution 90 was adopted on June 20, 1979, requesting the Secretary of Agriculture to make a study of the programs administered under the National School Lunch Act and the Child Nutrition Act of 1979. This study was directed to: costs, incomes of families participating in the program, use of programs for nutrition purposes, contribution of the program to the agricultural economy, income verification, and need for future legislative changes. The final report will not be available until January 1982.

complex financing scheme of the current programs; and the shifting burden of program costs among the federal, state, and local governments, and participants, over time. Chapter V reviews the impact of the programs on the agricultural sector, and also analyzes the nutritional impact of the various child nutrition programs; the chapter also includes an analysis of child nutrition data from the first national Health and Nutrition Examination Survey. The cost and potential nutritional impact of alternative policies is presented in Chapter VI.

CHAPTER II. THE CHANGING FOCUS OF CHILD NUTRITION POLICY

Federal programs and policies related to the nutritional status of children have undergone major changes since the first direct feeding activities in the 1930s. These changes can best be characterized as a swing from general agricultural support goals, to the broad policy objective of providing the child the wherewithal to acquire a basic diet, to an attempt through education and regulation to modify that diet.

This changing child nutrition policy agenda has paralleled the development of the relatively new science of nutrition, and accompanied the recent focusing of national health policies on preventive care. Throughout the twentieth century, major advances have been made in the discovery and understanding of essential vitamins and minerals. More recently, research in cellular and molecular biology has shown that the lack of certain essential nutrients may affect the development of enzymes and other cellular components, resulting in severe debilitating diseases. A gap between the theoretical and scientific knowledge of nutrition and its actual application appears to have developed. The federal child nutrition policy agenda seems to be moving slowly to narrow that gap through nutrition education and certain food safety regulations. This changing focus could significantly alter federal funding needs for future child nutrition programs.

STATE AND LOCAL EDUCATION POLICIES

School feeding programs began in the early 1900s with the establishment of free, compulsory, and universal public schooling. Social scientists argued that it was unrealistic, from the point of view of learning, to have a compulsory school law without also meeting the physical needs of the children so that they could adequately receive instruction.[1]

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[1] Robert Hunter, Poverty: Social Conscience in the Progressive Era (Harper and Row, 1965); John Spargo, Bitter Cry of the Children (Times Books 1972; repr. of 1906 ed.); and Horace Mann, "Twelfth Annual Report of the Massachusetts Board of Education," in Kenneth Keniston, ed., All Our Children (Carnegie Corporation of New York, 1977).

During the early 1900s, school feeding programs were supported by philanthropic organizations, school-oriented associations, local school districts, and private individuals. By 1937, 15 states had passed laws authorizing local schools to operate lunch programs. In almost all these states, schools were authorized to serve meals at cost, while in four states free or reduced-cost lunches were served to "needy children."[2]

AGRICULTURAL SUPPORT POLICIES

Early and continual federal involvement in the school feeding programs resulted from the combination of two factors: (1) the fiscal burden on local governments caused by the growth of the programs, and (2) the great depression of the 1930s that resulted in crop surpluses and depressed farm prices and incomes.

In response to the depression, the Roosevelt Administration established the Federal Surplus Relief Corporation (FSRC) in October 1933. The major purpose of the FSRC was:

> . . . to purchase, store, handle, and process surplus agricultural and other commodities, and products thereof, and to dispose of the same so as to relieve the hardship and suffering caused by unemployment.

In 1935 FSRC became the Federal Surplus Commodities Corporation (FSCC), and a major amendment to the Agricultural Act of 1935 (Section 32) appropriated monies each fiscal year to the Secretary of Agriculture in an amount equivalent to 30 percent of the "gross receipts from duties collected under the customs laws." This permanent appropriation was to remain in a separate fund, and to this day continues to be a major federal funding source for domestic feeding programs (see Chapter IV).

Surplus agricultural commodities purchased using this fund were, and still are, donated to needy families and child nutrition programs. The disposition of surplus commodities to schools led to the spread of school lunch programs nationwide. In 1937, 3,839 schools received commodities for lunch programs serving 342,000 children daily; five years later in 1942, 78,840 schools serving nearly 5.3 million children received commodities.

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[2] Gordon W. Gunderson, The National School Lunch Program, Background and Development, U.S. Department of Agriculture, Food and Nutrition Service (1971).

INCOME ASSISTANCE POLICIES

The federal government's involvement in child feeding activities implicitly shifted toward general income assistance during World War II. Between 1942 and 1944, surplus commodities available for donation to schools dropped sharply. In order to offset the decline in federal commodity assistance, the Congress appropriated $50 million in direct cash subsidies to school lunch sponsors from the Section 32 fund in 1943, and made similar appropriations in the following two years.

The uncertainty of continued federal support (either through commodities or annual appropriations) together with high start-up costs at the local level slowed the expansion of school feeding programs. As a consequence, the National School Lunch Act was enacted in 1946, authorizing permanent grants-in-aid to states and placing responsibility for expansion on the educational agency in each state.

The National School Lunch Act established three basic operating standards for states receiving federal cash and commodity assistance:

(1) School lunch programs would be operated on a nonprofit basis;

(2) Free or reduced-price lunches would be provided needy children; and

(3) Lunches would meet specified federal standards.

Funds appropriated under the act were apportioned among the states on the basis of the number of school children between 5 and 18 years of age in each state and according to each state's per capita income. For fiscal years 1947 through 1950, federal funds were to be matched dollar for dollar from state and local funds. Over time the state matching rate has increased, until today each federal dollar spent must be matched by three dollars from state and local sources.[3]

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[3] Today the match only applies to general cash assistance funding (Section 4). See Chapter IV, page 52. States are required to provide at least 10 percent of the total matched funds provided from state revenues. The greater part of the matching monies is provided by children's payments and local resources.

Some low-income areas had difficulty in expanding their feeding programs because they lacked facilities and space for meal preparation. This led to the development of a special commodity assistance program for needy schools, and an equipment assistance program (both programs are operational today).

The apportionment provisions were eventually discarded and replaced in 1972 with a performance funding system. This new legislation guaranteed a minimum general federal subsidy on the basis of the number of lunches served in a state regardless of the income status of the participants. Legislation enacted in 1973 extended the performance funding concept to provide higher federal subsidies to lunches served to needy children--explicitly recognizing the higher level of nutritional deficiency in lower-income groups, and therefore also attempting to encourage participation by these groups.

HEALTH AND NUTRITION POLICIES

During the late 1960s federal policy began to focus on the problems of hunger and malnutrition.[4]

Child Nutrition Act of 1966. The Child Nutrition Act of 1966 greatly enlarged the scope of federal child nutrition programs. It authorized programs to provide nutritional services to children regardless of whether they were in an educational institution. It expanded the potentially eligible population to include children of all ages at all times of the year. The school breakfast program was developed to serve children before the normal school day began. The special milk program was expanded to serve children who were not participating in other federally subsidized programs. Federal reimbursement on a performance funding basis was also established for these programs.

Other groups also benefited. A special feeding program for infants, children, and pregnant women was established to provide high-protein nutritional supplements. A child-care food program was developed to subsidize meals served preschool children and after-school children who participated in organized day-care programs. A summer food program was created to subsidize meals served children during nonschool months who participated in summer or school vacation programs, providing food service similar to that made available to children during the regular school year.

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[4] The term malnutrition used throughout this paper refers to a condition characterized by an intake of one or more nutrients at insufficient levels such that the individual is placed in high risk of developing specific clinical signs of deficiency or abnormal physical development. Severe malnutrition usually refers to a clinical syndrome arising from long-term protein calorie malnutrition--kwashiorkor.

Food Quality and Safety. Recently the focus of policy has shifted from combating overt malnutrition to identifying marginal nutritive intake that may foster a low level of vitality and health, and that may eventually result in subclinical nutritional deficiency symptoms. The major nutrition question in the United States today is no longer whether there is enough food available for everyone but whether the quality of food consumed is adequate.

Oversight hearings in Congress have suggested that six of the ten leading causes of death in the United States could be connected to diet: heart disease, cancer, stroke and hypertension, diabetes, and arteriosclerosis. While a number of these degenerative diseases are not common in children, it is believed that dietary habits formed during the developing years may continue lifelong and influence the severity of those diseases in later life.[5]

Federal child nutrition programs, therefore, have become intertwined with food information and food quality issues affecting all segments of the population. Amendments in 1977 to the Child Nutrition Act established a grants-in-aid program to assist states in the creation of nutrition education programs. Amendments in 1978 also required states to provide nutrition education to low-income, pregnant women through funds appropriated under the special supplemental feeding program.

More recently, sensitive programmatic and political issues have arisen over Administration policies to regulate the sale of certain "competitive" foods in schools participating in the school

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5. See for example: Joaquin Craviota and Elsa R. DeLicardie, "The Effects of Malnutrition on the Individual," in A. Berg, N. S. Scrimshaw, and D. L. Call, ed., Nutrition, National Development, and Planning (M.I.T. Press, 1973) and "Value and Safety of Diet Modification to Control Hyperlipidermia in Childhood and Adolescence," in American Heart Association Committee Report, Dallas, Texas (July 1978).

lunch program.[6] The Congress in 1977 granted the Secretary of Agriculture the authority to regulate the sale of certain "nonnutritious" foods during school hours on the basis that such foods contributed to increased plate waste, low participation in the school lunch program, and an increase in the consumption of nonnutritious foods in schools.[7]

The Federal Trade Commission and the Food and Drug Administration have also recently increased their involvement in nutrition issues affecting children. These agencies increasingly are involved in regulations governing advertising of food products aimed at children and issues related to nutrition labeling and food fortification.

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[6] Competitive foods are defined as any foods that are sold in competition with the standard required lunch (Type A) served in schools. In 1970, Section 10 of the Child Nutrition Act of 1966 was amended to give the Secretary of Agriculture the authority to prescribe regulations relating to food service in competition with programs authorized under the National School Lunch Act and Child Nutrition Act. This provision was amended again in 1972, preventing such action if the sale of such foods would inure to the benefit of the schools or student organizations in the school. See: Federal Register, Department of Agriculture, Food and Nutrition Service (July 1979).

[7] A proposal implementing this authority in April 1978 would have banned the sale of soda water, frozen desserts, candy, and chewing gum. The proposal was withdrawn under heavy public comment. A new proposal promulgated in July 1979 placed emphasis on restricting the sale of foods of "minimal nutritional value."

Further, a Department of Agriculture (USDA) proposal to ban the use of formulated grain-fruit products in school breakfast programs because of their alleged high sugar and fat content and the belief that they promoted poor eating habits, was overturned in fiscal year 1979 by agriculture appropriation laws. This proposal will be considered again for the school year beginning in the fall of calendar year 1980.

CHAPTER III. CHILD NUTRITION PROGRAMS

The federal child nutrition programs have been described as fragmented, overlapping, and administratively complex. There are at least 37 different federal reimbursement schemes within ten major programs, and at least five major Congressional committees directly influence legislation and program operations. Federal benefits vary within programs depending on the particular type of food service provided, the income of the participant, the characteristics of the sponsoring organization, and other factors. Some benefits are fully financed by the federal government; others require that additional charges be levied against participants or that additional state and local resources be made available. Some programs receive advance funding, some are traditional grants-in-aid, and most are performance funded, that is, they receive funds on the basis of the number of meals served and a statutorily defined reimbursement rate.

This chapter describes the ten major child nutrition programs, all of them administered by the U.S. Department of Agriculture's Food and Nutrition Service.[1] Their main characteristics

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[1] In addition to the food delivery programs described in this chapter, the federal government also supports child nutrition activities indirectly through a number of other programs. One group of supportive services includes the federal food stamp program, federal grants to states for social and child welfare services (covering child day-care services, Head Start programs, foster care activities, and child residential care), and federal funding for maternal and child health-care programs, family planning, preventive health-care services, and the children's early periodic, screening, diagnosis, and treatment (EPSDT) program.

Another category of federal programs covers the broad area of research, monitoring, and regulation. The National Institute of Child Health and Human Development funds research on mothers and children; a newly established Human Nutrition Research Institute, in the Science and Education Administration of the USDA, will focus on human nutritional requirements and the nutritive value of food; and the Center for Disease

(Continued)

are summarized in Table 1, in terms of authorization period, the basis for appropriation, average federal subsidy, whether or not the benefits are income-tested, the method of indexing benefits, the targeted population, and the basic delivery system.[2]

NATIONAL SCHOOL LUNCH PROGRAM (NSLP)

The NSLP, the oldest and largest child nutrition program, is permanently authorized by the National School Lunch Act of 1946. In fiscal year 1980, an estimated $6.4 billion will be spent nationwide in the NSLP, representing approximately 80 percent of all child nutrition expenditures. Federal expenditures for the NSLP will reach about $3.1 billion, or nearly half of the total expenditures for the program in fiscal year 1980.[3]

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1. (Continued) Control has developed a program of nutrition surveillance designed to analyze the nutritional status of children through the collection of data from state and local health departments, Head Start programs, the women, infants, and children (WIC) program, and other health-care situations.

2. The basis of appropriation refers to whether the program is a grants-in-aid subject to appropriations or whether the programs are considered entitlements. According to a USDA/OMB study, while no specific definition of "entitlement program" has been developed for the child nutrition programs, they are managed as if they were entitlement programs and are widely regarded as entitlement programs within the executive and legislative branches. Until 1972, child nutrition programs were authorized and administered as categorical formula and project grant programs. However, under legislation enacted between 1972 and 1975, the major child nutrition programs have been "performance funded." Performance funding means that the basis for federal program assistance is state performance of a statutorily defined "reimbursable event." In addition, the federal assistance is calculated on the basis of a statutory reimbursement formula, and not on a basis that is discretionary within USDA. See: *Financial Management in the Food and Nutrition Service, USDA/OMB* (September 1976).

3. The federal food stamp program provides assistance to low-income families with children, although it is not targeted specifically on children. Based on data analyzed from the (Continued)

TABLE 1. OVERVIEW OF TEN CURRENT FEDERAL CHILD NUTRITION PROGRAMS, FISCAL YEAR 1979

Item and Start Date	Authorization Period	Appropriations (millions of dollars), Appropriation Basis, and Indexation	Means Test and Average 1979 Federal Subsidy	Targeted Population	Benefit Delivery System
National School Lunch Program 1946	Permanent	$1,781.8 Entitlement: Formula subsidy per lunch served. Semiannual; January and July; CPI for food away from home.	Regular: No. Free or reduced: Yes. 62 cents per meal.	School-age children (defined as under 21 years of age) enrolled in school or residential child-care institutions	Cash and/or commodities distributed to: preprimary, primary, and secondary schools; child-care institutions including homes for mentally retarded, emotionally disturbed, physically handicapped persons and unmarried mothers; halfway houses; orphanages; shelters for abused children; long-term health-care facilities; and juvenile detention centers.
School Breakfast 1968	Permanent	$215.0 Entitlement: Formula subsidy per breakfast served. Semiannual; January and July; CPI for food away from home.	Regular: No. Free or reduced: Yes. 40 cents per meal.	School-age children (defined as under 21 years of age) in residential schools or child-care institutions drawing attendance from areas of poor economic conditions, areas requiring	(Same as national school lunch program.)

(Continued)

TABLE 1. (Continued)

Item and Start Date	Authorization Period	Appropriations (millions of dollars), Appropriation Basis, and Indexation	Means Test and Average 1979 Federal Subsidy	Targeted Population	Benefit Delivery System
				students to travel long distances, or areas with a large proportion of working mothers.	
Child Care Food Program 1968	Permanent	$146.0 Entitlement: Formula subsidy per breakfast, lunch, and supplement served. Semiannual; January and July; CPI for food away from home.	Regular: No. Free or reduced: Yes. 42 cents per meal.	Children under 19 years of age in nonresidential service organizations providing child care.	Cash and/or commodities distributed to public or private nonresidential child-care organizations including: child day-care centers, settlement houses, recreational centers, Head Start centers, centers for the physically handicapped, family or group day-care homes, and facilities providing care for children outside normal school hours.
Summer Food Service Program 1968	Expires 1980	$148.50 Entitlement: Formula subsidy per breakfast, lunch, and supplement served.	Residential summer camp participants: Yes. All other	Children under 19 years of age participating in food service programs designed to serve	Cash and/or commodities distributed to nonresidential public or private nonprofit institutions or residential

(Continued)

TABLE 1. (Continued)

Item and Start Date	Authorization Period	Appropriations (millions of dollars), Appropriation Basis, and Indexation	Means Test and Average 1979 Federal Subsidy	Targeted Population	Benefit Delivery System
		Annual; January; CPI for food away from home.	service institution participants: No. 92 cents per meal.	children from areas of poor economic conditions. For the months May through September only. Children 19 years of age or older who are mentally or physically handicapped.	public or private nonprofit summer camps.
Equipment Assistance 1946	Permanent	$24.0 Grants-in-aid subject to appropriations, $75 million limit. No indexation.	No.	Schools and residential child-care institutions drawing attendance from areas of poor economic conditions. Priority to be given schools without a food service program or without facilities to prepare and cook hot meals.	Cash grants to schools or child-care institutions similar to those listed under national school lunch, and child-care food programs.
Commodity Distribution	Expires 1982	$535.0 Entitlement: Formula subsidy per lunch served. Surplus commodities that	No. 13.8 cents per meal.	Children participating in national school lunch program, school breakfast	Commodity food donations to same food service organizations as in national school

(Continued)

TABLE 1. (Continued)

Item and Start Date	Authorization Period	Appropriations (millions of dollars), Appropriation Basis, and Indexation	Means Test and Average 1979 Federal Subsidy	Targeted Population	Benefit Delivery System
1935/ 1974		can be used efficiently and effectively. Annual; July; Price Index for Food Used In Schools and Institutions.		program, child-care food program, summer food service program, and regular supplemental food program.	lunch, school breakfast child-care food, and summer food service programs.
Special Milk Program 1943	Permanent	$142.0 Entitlement: Formula subsidy per half-pint milk served. Annual; July; producer price index for fresh processed milk.	Regular: No. Free milk: Yes. 8 cents per half pint.	Children under 21 years of age in schools, residential, and nonresidential child-care institutions, and in the summer food program.	Cash subsidy to same food service organizations as in national school lunch, school breakfast, child-care food, and summer food service programs.
Special and Regular Supplemental Food Programs for Women, Infants, Children	Expires 1982	$569.5 Entitlement through FY 80; $900 million authorization limit FY 81; $950 million authorization limit FY 82. No indexation.	Yes. 27 cents per meal.	Low-income, pregnant, postpartum, and breastfeeding women, infants (under one year of age), and children (under five years of age), who are found to be at nutritional risk.	Commodities and grants-in-aid to be used by local agencies for direct food purchases or to be provided recipients in form of food vouchers. Local agencies may include public health or welfare or private nonprofit health or welfare agencies that provide health services.

(Continued)

TABLE 1. (Continued)

Item and Start Date	Authorization Period	Appropriations (millions of dollars), Appropriation Basis, and Indexation	Means Test and Average 1979 Federal Subsidy	Targeted Population	Benefit Delivery System
Nutrition Education and Training Program 1977	Expires 1980	Grants-in-aid subject to appropriation. No indexation.	No. 50 cents per child per year.	Children participating or eligible to participate in national school lunch or related child nutrition programs. Pregnant, postpartum and breastfeeding women and caretakers of infants and children enrolled at local agencies participating in WIC programs.	Cash grants to state educational agencies which may in turn contract with land-grant colleges, other institutions of higher learning, and nonprofit organizations and agencies providing nutrition education in schools.

Federal assistance in cash and commodities is provided to children through public or nonprofit private schools and public or licensed nonprofit residential child-care institutions. These organizations use the federal assistance for the purpose of preparing and serving nutritious meals to their enrolled children. Meals served in the program qualify for federal assistance if they meet certain federal meal patterns and standards of nutrition quality.

Beginning as a grant-in-aid program to states to support the development and expansion of nonprofit school lunch programs, the program was amended in 1972 to provide funds to state administering agencies on a performance funding basis (that is, the number of lunches served times a statutorily defined federal reimbursement rate).

In the 1978-1979 school year (fiscal year 1979), 94,500 schools and residential child-care institutions participated in the program. These participating schools had over 90 percent of the total school enrollment, making the NSLP the most accessible child feeding program nationwide. An estimated 27.4 million or 61 percent of the eligible school enrollment participated in the program. Despite declining national school enrollments in recent years, participation in the NSLP has shown a slight increase (see Figure 1). Almost all of the increase, however, can be attributed to increases in the number of students receiving special cash subsidies (free or reduced-price meals).

Schools receive special cash subsidies for meals served to children from families with incomes at or below national income standards. About half of the federal NSLP expenditures in 1980 are special cash subsidies. For the current school year an annual income of less than $8,940 (125 percent of the USDA poverty guidelines) qualifies children in a family of four for lunches served without charge (see Table 2). The state administering agency

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3. (Continued)
August 1977 Current Population Survey, it has been estimated that of all households with children enrolled in school between the ages of 4 and 18 and receiving free or reduced-price school lunches, nearly half (43 percent) also receive federal food stamps. An estimated 60 percent of all children receiving the specially subsidized lunches also receive food stamps.

Figure 1.

U.S. School Enrollment and Participation in National School Lunch Program, Fiscal Years 1967-1979

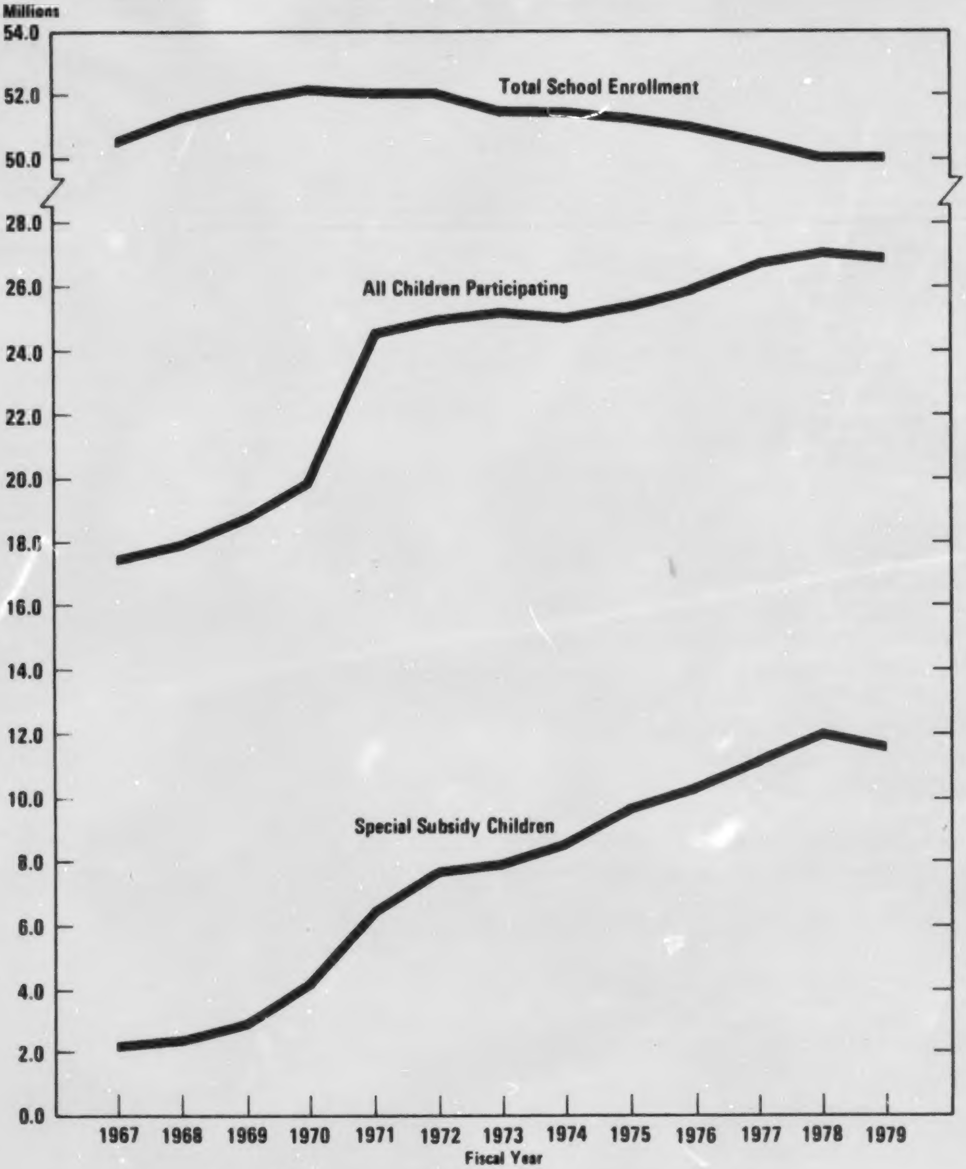

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TABLE 2. ANNUAL INCOME GUIDELINES FOR DETERMINING ELIGIBILITY AND NATIONAL AVERAGE PAYMENT STANDARDS IN THE FEDERAL CHILD NUTRITION PROGRAMS, SCHOOL YEAR 1979-1980[a]

Family Size	USDA Poverty Income Guidelines	Maximum Income Eligible for Free Food Service	Maximum Income Eligible for Reduced-Price Food Service
1	$ 3,670	$ 4,590	$ 7,160
2	4,830	6,040	9,420
3	5,990	7,490	11,680
4	7,150	8,940	13,940
5	6,310	10,390	16,200
6	9,470	11,840	18,470
7	10,630	13,290	20,730
8[b]	11,790	14,740	22,990

a. Guidelines apply only to the 48 states, District of Columbia, and territories excluding Guam.

b. Guidelines for families of more than 8 persons increase approximately proportionately.

receives a federal cash payment of 97.25 cents per free lunch served such children.[4] States disperse the funds to participating schools, and are authorized (within the total free reimbursement funds available to a state) to pay schools up to a maximum of 112.25 cents for each free meal served. By law a school can receive meal reimbursements only up to the cost of producing a meal. Therefore, if a school receives the maximum reimbursement (112.25 cents) because of higher per unit costs, these higher reimbursements will be offset by the fact that some schools in the state with lower per unit costs will receive lower federal reimbursement.

If the family's income is between $8,940 and $13,940, the children are eligible to receive reduced-price lunches at a charge of 10 cents or less. The state administering agency receives a cash assistance payment of 87.25 cents for each reduced-price lunch served.[5]

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[4] The payment represents a combination of 17.75 cents as a basic national average payment for all school lunches and 79.50 cents for special assistance. Payment standards apply to the period January 1980-June 1980 (see Table 3 in the text).

Finally, if the family's income exceeds $13,940, the participating children pay a meal charge established by the school. The average lunch charge nationwide for paying students is approximately 52 cents.[6] The state receives a national average

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5. Under provisions of the Child Nutrition Amendments of 1978 (P.L. 95-627), schools may charge up to 20 cents for reduced-price lunches, but the reimbursement rate for reduced-price lunches would decrease to 77.25 cents--10 cents less than if the charge to the student was set at 10 cents. As of January 1979, 43 states had established a maximum reduced-price lunch charge of 10 cents.

6. Fact Sheet on Child Feeding Programs, USDA Food and Nutrition Service, based on data reported through June 15, 1979 (September 25, 1979). Nationwide the average lunch charge to a paying student has stabilized since fiscal year 1975:

	Cost per Lunch		Student's Payment for Full Price		CPI Food-Away-From-Home	
Fiscal Year	Cents	% Change Previous Year	Cents	% Change Previous Year	1967=100	% Change Previous Year
1971	64.8	--	37.3		123.2	--
1972	69.2	+6.6	39.7	+6.2	128.7	+4.5
1973	75.5	+8.7	42.8	+7.5	134.7	+4.6
1974	84.7	+11.4	46.5	+8.3	150.5	+11.7
1975	95.1	+11.6	53.2	+13.5	167.7	+11.4
1976	99.1	+4.1	53.4	+0.4	180.3	+7.5
1977	102.9	+3.8	52.4	-1.9	196.4	+8.9
1971-1977	+38.1	+58.8	+15.1	+40.5	--	59.4

(Continued)

payment of 17.75 cents for the lunch served the paying student. Within the total federal funds allocated to the state for paid lunches, states are authorized to pay schools up to a maximum of 23.75 cents per lunch. Again, should some schools receive the maximum reimbursement, other schools would receive lower reimbursements within a state because of the requirement that federal reimbursement along with student changes cannot exceed the cost of producing a meal.

In fiscal year 1977 (the last year for which actual data are available), the average cost nationwide of producing a lunch was about $1.03. Paying students supported through their own payments 51 percent of the cost of producing a meal in 1977, down from 58 percent in 1971. The charge to a paying student has stablilized since 1975, while food costs have continued to rise.

In fiscal year 1979, approximately 10.0 million children received lunches free of charge (37.1 percent of all lunches served in the program). Reduced-price lunches were served to 1.7 million children (5.9 percent of the total lunches), while 15.3 million children (56.9 percent of the total lunches) paid for their lunches.

In addition to the basic federal cash subsidy made available to participating schools, federal law mandates a minimum level of commodity support per meal served. For the current school year, this minimum level of assistance is established at 15.75 cents per lunch served. If commodities distributed to states for the support of school lunches do not meet the minimum level of commodity assistance required, the federal government provides a cash payment to the states for the difference between the actual level provided and the mandated minimum level of assistance.[7]

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6. (Continued)
Data from other USDA studies show slightly different charges to children. For example, the Special Milk Program Evaluation and National School Lunch Program Survey (June 1978) reported average full prices for school lunches of 42.8 cents in January 1974 and 45.7 cents in January 1975. Preliminary data from another study reported average school lunch prices of 49.5 cents as of October 1977. All of these studies were conducted in a nationally representative sample of schools.

7. Amendments to the National School Lunch Act in 1977 permit a school to refuse acceptance up to a maximum of 20 percent of the total value of commodities tendered to it in any school (Continued)

Including both mandated commodity assistance and cash assistance payments, the federal government supports approximately 82 percent of the cost of a lunch served free, 75 percent of the cost of a reduced-price lunch, and 24 percent of the cost of a paid lunch (see Table 3).

TABLE 3. FEDERAL ASSISTANCE PER LUNCH SERVED IN THE NATIONAL SCHOOL LUNCH PROGRAM, JANUARY 1980-JUNE 1980 (Cents per lunch)

Category of Assistance	Paying Lunch	Reduced-Price Lunch	Free Lunch
General Assistance (Sec. 4)	17.75	17.75	17.75
Special Assistance (Sec. 11)	—	69.50	79.50
Commodity Assistance	15.75	15.75	15.75
Total Federal Assistance	33.50	103.00	113.00
Estimated Cost of Lunch[a]	138.00	138.00	138.00
Percent of Lunch Cost Federally Assisted	24.2	74.6	81.9

a. The estimated cost of a lunch for the period July 1979 to December 1979 was based on the change in the CPI for food away from home since fiscal year 1977, multiplied by the estimated 1977 lunch cost as shown in Footnote 5.

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7. (Continued)
year. Refused commodities may be replaced with other available commodities, but if not replaced their value is lost. The purpose of this amendment was to increase the responsiveness of the state commodity distribution agency in providing commodities useful to the operation of a school's lunch program.

SCHOOL BREAKFAST PROGRAM (SBP)

The school breakfast program was established as a two-year pilot program in 1966 with the enactment of the Child Nutrition Act of 1966. The program was originally designed as a grant-in-aid to states for the purpose of creating or expanding nonprofit breakfast programs in schools. In 1973 the funding of the program was modified to a performance funding basis providing cash assistance to states on the basis of the number of breakfasts served and a federal reimbursement rate. The program was extended, and in 1975 was permanently authorized.

In fiscal year 1980, it is estimated that the program will cost $280 million, making it the third largest federal child nutrition program. Last school year, over 30,970 schools and residential child-care institutions participated in the program. School breakfast participation averaged about 3.4 million children, or 24 percent of the enrollment in the participating schools.

Federal reimbursements for breakfasts served in the program are based on the same income guidelines discussed in the previous section for the NSLP, except for a severe need category. Currently, breakfasts served without charge to needy children (free) are reimbursed at 49.25 cents. Reduced-price breakfasts (the charge to the student cannot exceed 10 cents) are reimbursed at 40.5 cents, and paying students are reimbursed at 14.0 cents per breakfast served.

Overall, about 84 percent of the breakfasts served in the program are served free or at reduced prices, and 16 percent receive the paid reimbursement rate. The SBP, unlike the NSLP, is targeted primarily on schools drawing attendance from areas of poor economic conditions.

If a school operating a breakfast program qualifies as in severe need, higher rates of federal reimbursements apply. A severe need school is defined as a school where (1) either the state mandates a school breakfast program, or (2) 40 percent or more of the students are served free or reduced-price lunches, and the regular federal reimbursement rates are insufficient to cover the cost of operating a breakfast program.[8] Currently,

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8. The severe need classification applies only to higher reimbursement rates and was established with the Child Nutrition Amendments of 1977 (P.L. 95-166) and 1978 (P.L. 95-178).

reimbursement rates for a severe need school are 59.5 cents for a free breakfast and 54.5 cents for a reduced-price breakfast (see Table 4). Approximately 28 percent of the schools operating a breakfast program qualify as severe need schools.

TABLE 4. FEDERAL ASSISTANCE PER BREAKFAST SERVED IN THE SCHOOL BREAKFAST PROGRAM, JANUARY 1980-JUNE 1980 (Cents per meal)

Category of Assistance	Paying Breakfast	Reduced-Price Breakfast	Free Breakfast
Non-Severe Need Schools			
All Breakfasts	14.00	14.00	14.00
Special Assistance	--	26.50	35.25
Total Federal Assistance	14.00	40.50	49.25
Severe Need Schools			
All Breakfasts	14.00	54.50	59.50
Total Federal Assistance	14.00	54.50	59.50

Figures related to the average cost of producing a school breakfast are not available on a national basis. Because of smaller numbers of participants in the SBP compared to the NSLP, administrative and labor costs per unit are probably higher than for the NSLP. Per unit food costs, however, are less for breakfasts than lunch. Based on limited data from 27 elementary schools, the average cost of producing a breakfast in 1979 was between 55 and 60 cents, about half the cost of producing a lunch.[9]

SUMMER FOOD SERVICE PROGRAM (SFSP)

The summer food program was established as a three-year pilot grant-in-aid program in 1968, providing states funding for the purpose of initiating or expanding summer programs in nonresidential institutions that provided food service similar to that of the breakfast or lunch programs. The program was designed to serve children from low-income areas in which there was a high concentration of working mothers. Current authorization extends through fiscal year 1980.

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[9] U.S. Department of Agriculture, preliminary data from a special survey of the costs of lunches and breakfasts.

In 1975 the program was significantly altered. Federal reimbursement rates for meals served were established, and the program was expanded to cover nonprofit residential summer camps. Meals were to be provided at no cost to the child. New modifications in 1977 established priority for selecting participating organizations and changed federal reimbursement rates to include administrative costs. Summer 1980 reimbursement rates appear in Table 5.

TABLE 5. REIMBURSEMENT RATES IN THE SUMMER FOOD SERVICE PROGRAM, SUMMER 1980 (Cents per meal)

		Administrative Reimbursement		Total Maximum Reimbursement	
	Operating Reimbursement	Regular	Rural/ Self Preparation	Regular	Rural/ Self Preparation
Breakfast	63.25	4.75	5.75	68.00	69.00
Lunch/Supper	113.50	9.00	10.75	133.25	135.00
Snack	29.75	2.25	3.00	32.00	32.75

NOTE: Reimbursement for administrative expenses is higher for rural sponsors and those that prepare the meals themselves. Rates are fixed and do not vary by economic status of the child served, so long as the area is one in which at least one-third of the children are eligible for free or reduced-price school meals, using NSLP criteria. In the special case of summer residential and nonresidential camps, only those participants who qualify for free or reduced-price meals are reimbursed at the fixed-payment standard. (Nonresidential camps are those offering a regularly scheduled, organized cultural or recreational program for children and serve four meals a day, while not maintaining sleeping quarters for the children.)

Participation in the program grew to a peak of nearly 3.5 million children in the summer of 1976, declining to approximately 2.4 million participants in July 1979. The number of feeding sites has remained stable since 1976, averaging about 22,700 in 1979. Federal costs in 1979 reached $148 million.

The program has been plagued with administrative and financing problems since its inception. Particularly high administrative and start-up costs are borne primarily by the sponsoring organization. As a result, some states have chosen to stop administering the program because of funding difficulties. Cash flow has been identified as a pervasive problem affecting sponsors and administrators alike, even though provisions were made for forward-funding of sponsors in the 1977 law.

Appropriations for 1980 total about $90 million. The estimated decline in funding needs from 1979 was based on the assumption that appropriations would be restricted to six specific categories of sponsors (eliminating nonprofit sponsors who contract with food vendors) and that there would be a reduction of perceived fraud, abuse, and waste. Because it has been unable to achieve the originally estimated savings, however, the Administration has requested a supplemental appropriation for 1980 of $38 million.

CHILD CARE FOOD PROGRAM (CCFP)

The CCFP has been one of the fastest growing child nutrition programs. In fiscal year 1980 it will cost over $215 million and be the fourth largest feeding program nationwide. The program subsidizes meals served to children up to 18, but primarily of preschool age, who are enrolled in a licensed nonprofit, nonresidential child-care program.

The CCFP began as a three-year pilot program in 1968. It was designed to provide grants-in-aid to states for the purpose of supporting nonprofit food service programs in nonresidential daycare programs. Institutions selected for grants were to draw their attendance from areas with poor economic conditions and high concentrations of working mothers.

Major amendments in 1975 expanded the CCFP by extending eligibility to all nonprofit day-care centers (public and private) regardless of the service area's economic condition. The 1975 law also permitted family and group day-care homes to participate in the program if they joined under the sponsorship of an administrative organization. Finally, the 1975 law replaced the grant-in-aid funding mechanism with a performance funding system. Reimbursement rates (similar to the lunch and breakfast programs) varied by the type of meal served and the economic status of the child receiving the meal.

In 1978, the CCFP was once again extensively modified. The program was made permanent and institutional eligibility was clarified. The new law and accompanying regulations establish three distinct types of operations: child-care centers, family day-care homes, and outside-school-hours care centers. These different facilities vary in administrative complexity, operational stability, and the managerial expertise required. Reflecting these differences, federal reimbursement and operational requirements also vary by type of child-care facility.

In fiscal year 1979, over 7,500 institutions representing nearly 29,000 program outlets participated in the program. The program subsidized the meals served for over 650,000 children; over 60 percent of the meals served were free.[10]

Reimbursement rates in the CCFP are complicated by the vast array of different types of child-care institutions and sponsoring organizations. The program has over 16 different benefit reimbursement formulas. Current reimbursement rates for the child-care food program are shown in Table 6.

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[10] Most of the children who participate in the program are enrolled in sponsored child-care centers. Approximately 60 percent of the participants were enrolled in sponsored child-care centers in fiscal year 1979, 33 percent in independent child-care institutions, and less than 10 percent in sponsored family day-care homes.

Approximately 74 percent of the program's funds went to sponsored child-care centers, and nearly 75 percent of the children enrolled in these types of institutions qualified for free meals. Independent child-care centers received 25 percent of the federal funds, and about 60 percent of the children in these institutions qualified for free meals. Sponsored foster day-care homes received less than one percent of all federal funds.

TABLE 6. FEDERAL ASSISTANCE PER MEAL SERVED IN THE CHILD-CARE FOOD PROGRAM, JANUARY 1980-JUNE 1980, BY TYPE OF MEAL AND ECONOMIC STATUS OF RECIPIENTS (Cents per meal)

	Child-Care and Outside-School-Hours Care Centers								
	Lunch and Supper			Supplemental			Breakfast		
	Paying	Reduced-Price	Free	Paying	Reduced-Price	Free	Paying	Reduced-Price	Free
General Assistance	17.75	17.75	17.75	7.25	7.25	7.25	14.00	14.00	14.00
Special Assistance	—	69.50	79.50		14.75	21.75	—	26.50	35.25
Commodity Assistance	15.75	15.75	15.75	—	--	--	--	--	--
Total Federal Assistance	33.50	103.00	113.00	7.25	22.00	29.00	14.00	40.50	49.25

	Sponsored Family Day-Care Homes[a]		
	Lunch and Supper	Supplemental	Breakfast
Food Cost Factor	55.75	19.00	31.25
Total Federal Assistance	55.75	19.00	31.25

a. Special food cost factors were authorized in the 1978 law for sponsored family day-care homes. In addition to these food cost factors, sponsors of family day-care home programs also receive special funding for administration of their programs.

A further modification to the traditional performance funding approach to federal reimbursements for child-care and outside-school-hours care centers was adopted in the 1978 law. These types of child-care centers have a choice between the traditional reimbursement scheme (meals served times the appropriate reimbursement rate) and a tiering method of reimbursement. Under the tiering method, a single national average payment rate is assigned for all particular types of meals served on the basis of the proportion of children enrolled in the program who are eligible for free and reduced-price meals to total enrollment. The purpose of the tiering method is to simplify reimbursement computations and permit institutions serving high proportions of needy children to receive more assistance. Specifically:

- If a child-care center has between 0 and 33 percent of its children enrolled in the free and reduced-price category, all meals may be reimbursed at the paid-meal rate.
- If the child-care center has between 33 and 66 percent of its children enrolled in the free and reduced-price category, all meals may be reimbursed at the reduced-price meal rate.
- If the center has 66 percent or more of its children enrolled in the free and reduced-price category, all meals may be reimbursed at the free-meal rate.

CCFP institutions other than sponsoring organizations for family day-care homes also receive commodities. The value of the commodities, or cash in lieu of commodities, is obtained by multiplying the number of lunches or suppers served by the national minimum level of assistance (15.75 cents in the current school year). Thus lunches or suppers served in the regular child-care programs may be reimbursed at between 33.5 cents and $1.13, while supplements are reimbursed at between 7.25 cents and 29.0 cents, and breakfast are reimbursed at between 14.0 cents and 49.25 cents, all depending on the economic status of the participating child.

CCFP institutions are also eligible to receive monies for purchasing food service equipment. The law authorizes $6 million annually for equipment assistance and such other uses as may be necessary to provide training, technical assistance, and monitoring of program activities.

SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)

The WIC program is the second largest and fastest growing federal child nutrition program. In fiscal year 1980, the program is estimated to cost $770 million, up from less than $100 million five years earlier. The program is authorized through fiscal year 1982 and is allowed to be funded up to $950 million in that year.

It began as a two-year pilot project for fiscal years 1973 and 1974, with an authorization for $20 million for each of the two years. Actual field operation of the program did not begin until January 1974. The program has grown from serving about 600 women, infants, and children in 36 health clinics in its opening months, to serving nearly 1.6 million people in over 5,500 clinics in fiscal year 1979.

The WIC program is designed to provide nutritious food supplements to pregnant, breastfeeding, and postpartum women as well as to children up to their fifth birthday. Funds are provided to states through grants-in-aid, and then channeled to local health clinics and other health facilities selected by the state as serving areas of greatest need based on economic and health statistics.

To qualify for the program, mothers and children must be individually certified as nutritionally at risk and having an inadequate income. Nutritional risk is established by competent professionals--physicians, nutritionists, nurses, and other health professionals—following broad statutory definitions.[11] Inadequate income is defined as below 195 percent of the poverty guidelines—currently $13,940 for a family of four, the same level used to define eligibility for reduced-price meals in the other child nutrition programs.

For each participating mother or child, monthly packages of foods high in protein, iron, calcium, vitamin A, and vitamin C are prescribed. Depending on the age of the woman or child, the packages may include such items as iron-fortified cereal, eggs, juice, and either milk or fortified infant formula or cheese.

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[11] Nutritional risk is defined in statutes as: (1) detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measurements, (2) other documented nutritionally related medical conditions, (3) dietary deficiencies that impair or endanger health, or (4) conditions that predispose persons to inadequate nutritional patterns or nutritionally related medical conditions.

Foods may be distributed in one of three ways:

- Retail purchase: vouchers to exchange for specified items at authorized grocery stores are given participating mothers. In fiscal year 1979, nearly 85 percent of the participants received supplemental foods through this method.
- Home delivery: specific food items are purchased by the clinic and distributed directly to the homes of participants. About 10 percent of the supplemental foods are home delivered.
- Direct distribution: specific food items are purchased by the clinic and distributed directly to the participants when they visit the clinic. About 5 percent of the supplemental foods are directly distributed.

Of all funds appropriated to the program, a maximum of 20 percent can be spent on operational and administrative costs, the remainder for food costs and purchases. Included within the operational and administrative costs are expenditures associated with nutrition education, medical certification, outreach services, costs of administering food delivery systems, transportation, and monitoring and review costs.

In fiscal year 1979, of the total program costs (approximately $580 million), about 18 percent was spent for administration and program operations. The remaining monies spent for supplemental foods resulted in an average program benefit per person of $24.40 per month, or about 27 cents per meal.

COMMODITY SUPPLEMENTAL FOOD PROGRAM (CSFP)

Like the WIC program, the CSFP distributes certain types of agricultural commodities to low-income infants, children, and women certified by local health agencies to be vulnerable to malnutrition.[12] The program began operation in fiscal year 1969, growing to a peak participation of about 200,000 in fiscal year 1972, and declining to about 25 projects serving 100,000 persons in fiscal year 1979. Today the program distributes commodities valued at less than $20 million.

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[12] Unlike the WIC program, however, legislative jurisdiction for this program lies with the House Agriculture Committee since (Continued)

The CSFP, in essence, was established with the Food and Agricultural Act of 1965, which authorized the Secretary of Agriculture to purchase dairy products for distribution to schools and domestic relief programs. Funds for the operation of this program were originally provided from permanent appropriations or special funds of the Commodity Credit Corporation.

The Food and Agriculture Act of 1977 mandated that the "traditional level of commodity assistance" provided certain programs receiving commodities be continued through fiscal year 1981. One of these programs was the CSFP. The 1977 law also provided that an amount not in excess of 15 percent of the value of donated commodities would be available to CSFP sponsors for administrative expenses, and that funding would be achieved through general revenues of the Treasury.

Eligibility for the program is established for infants, preschool children, and women during pregnancy and 12 months following it. Eligible persons must also have been found eligible for benefits under other existing federal, state, or local food, health, or welfare programs for low-income persons.

While the program may operate in the same service areas as a food stamp or WIC program, CSFP participants may receive food stamp benefits but not WIC benefits. In 1979, CSFP participants received an average food subsidy of $17.50 per month or about 19 cents per meal.

SPECIAL MILK PROGRAM (SMP)

The SMP subsidizes milk served to children in schools, residential and nonresidential child-care institutions, and summer

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12. (Continued)
it is considered a commodity program; the House Education and Labor Committee has jurisdiction over the remainder of the major child nutrition programs including the WIC program. In the Senate, the Agriculture Committee has authorizing jurisdiction over all programs discussed.

camps. In fiscal year 1980, the program will subsidize the milk served over 8 million children, making it the second largest program in terms of program coverage.[13] Because the subsidy per half-pint of milk served is small, the program will expend only $142 million, making it the fifth largest federal child nutrition program in terms of costs.

The current SMP was established in 1957 for the purpose of increasing the consumption of fluid milk by children in schools, and later expanded to cover other types of institutional settings. In 1970 the program was made permanent, and in 1973 amended to require schools to provide milk free of charge to children whose family income fell below 125 percent of the poverty threshold (free-lunch eligibility standards). In fiscal year 1979, about 13 percent of the milk was served free of charge, representing 22 percent of the program's costs.

In 1974, a minimum rate of five cents per half-pint was established as the federal reimbursement rate for nonfree half-pints served. Free half-pints are reimbursed at the actual cost of the milk to the school or institution. Initially, the federal reimbursement was indexed annually to changes in the CPI for food away from home; in 1978 the indexation was tied to the change in the producer price index for fresh processed milk. In the current school year, the federal reimbursement for a half-pint of milk is 7.75 cents; the free-milk reimbursement will average nearly 15 cents per half-pint.

FOOD SERVICE EQUIPMENT ASSISTANCE

The Child Nutrition Act of 1966 provided federal funding assistance to states for the purpose of acquiring food service equipment. Grant-in-aid monies are provided to schools drawing attendance from areas of poor economic conditions to supply them with equipment for preparation, transportation, and serving of food in the school lunch and breakfast programs. Federal monies must be matched by at least one-fourth from state and local sources.[14]

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[13] It should be noted that the meal patterns required for federal reimbursements in the national school lunch program, school breakfast program, summer food program, and child-care food program all include the serving of a half-pint of milk. Milk served in those programs is distinct from that served in SMP.

In fiscal year 1979, nearly 6,000 schools received equipment assistance funds. The average grant per school was approximately $4,000. In the current fiscal year, approximately $20 million was appropriated for the funding of this program.

STATE ADMINISTRATIVE EXPENSE FUNDING (SAE)

State agencies that administer school feeding programs and the CCFP have received SAE funding since 1970. Initially the SAE program was to assist schools in staffing the school lunch and breakfast programs--particularly in low-income areas. SAE funds today may be used for a wide variety of activities including salaries, employee benefits, and travel expenses for administrative and supervisory personnel, support services, office equipment, and staff development.

Federal expenditures for this program have increased from $1.7 million in fiscal year 1970 to $34.9 million in fiscal year 1980. Authorization for these expenditures expires with the end of fiscal year 1980. The amount of SAE money authorized to be appropriated in any one year is a percentage (between 1 and 1.5 percent) of the total funds appropriated for all child nutrition programs.

In 1978, amendments to the SAE program added an additional function for the monies--to improve states' compliance with basic program requirements. The fiscal year 1979 appropriations bill earmarked $4 million in SAE funds for program improvements, emphasizing program integrity. In response to this new focus, the Department of Agriculture has established an Assessment, Improvement and Monitoring System (AIMS).

AIMS requires states to monitor school meal programs on a regular basis, to identify problems, and to institute corrective actions under various performance standards. Performance standards relate primarily to the procedures for establishing eligibility for free and reduced-price meals and procedures for claiming meal reimbursements at the different subsidy levels.

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[14] The one-fourth matching requirement does not apply for schools defined as "especially needy."

Sanctions reducing a state's SAE funds would be imposed on those that fail to carry out the AIMS program. The Administration estimates this system will save over $65 million in fiscal year 1981 costs.

SAE has thus evolved from a mechanism for child nutrition program expansion to being, among other things, an instrument for enforcing basic program compliance.

NUTRITION EDUCATION AND TRAINING (NET) PROGRAM

Child nutrition amendments in 1977 greatly expanded federal funds available for a variety of nutrition education projects. Section 19 of the Child Nutrition Act of 1966 authorized funds to be appropriated to states at the rate of 50 cents for each child enrolled in schools or institutions. The program expires with the end of fiscal year 1980. Allocation of NET funds to states was delayed in fiscal years 1978 and 1979, as states prepared plans for utilizing the funds.

For fiscal years 1978 and 1979, $52 million in grants was made available to states, but at the beginning of 1980 only about $25 million had been spent. The grants were to be used to:

- Provide training in nutrition to teachers and school food service personnel;
- Provide management training to school food servic personnel; and
- Develop nutrition education activities for children schools and child-care centers.

CHAPTER IV. COSTS AND FINANCING OF CHILD NUTRITION PROGRAMS

Over the last decade and a half, child nutrition program expenditures have grown rapidly and the share of the costs borne by the federal government has continuously increased. While all programs have grown during this period, the most rapid expansion has occurred in the child feeding programs that are not directly related to schools. These primarily prenatal and preschool programs represent the potential areas of major budgetary growth in the 1980s.

THE INCREASING FEDERAL SHARE

The financing of the child nutrition programs is a complex system of interfund transfers, reprogramming of funds within accounts, state and local matching requirements, and individual payment rates. The underlying financing structure is an outgrowth of changing federal agricultural policies over the past 50 years.

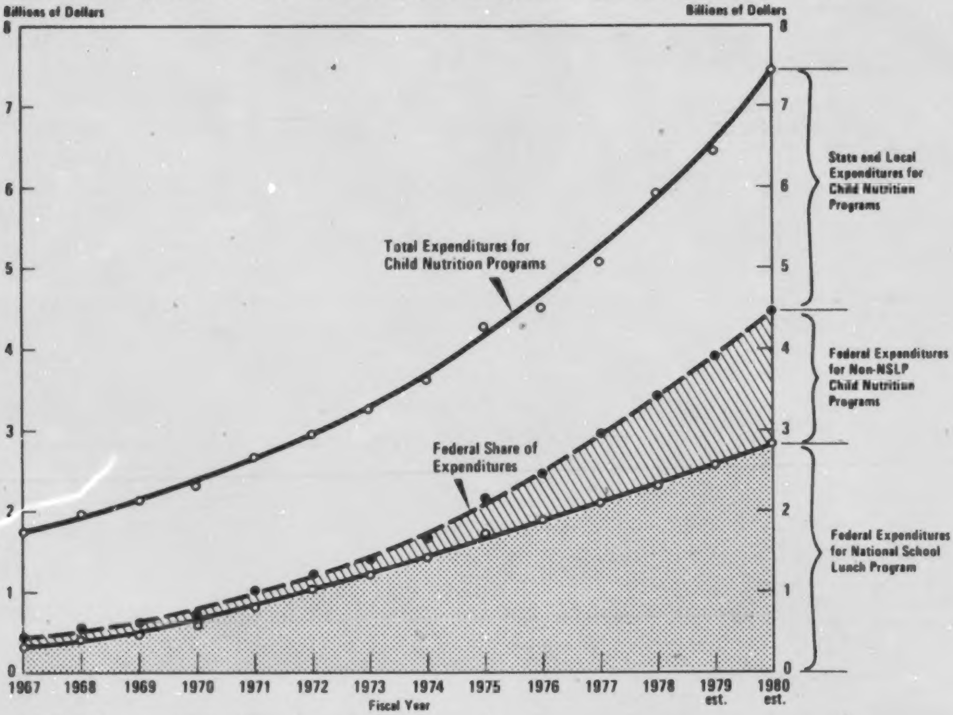
The financing structure will continue to evolve if, as current trends indicate, agricultural production moves slowly from an era of relative surplus to one of relative scarcity. Current law provides a great deal of administrative flexibility in responding to agricultural objectives, but this flexibility has been purchased at the price of a somewhat untidy accounting system within the federal child nutrition accounts.

Following the enactment of the Child Nutrition Act of 1966, total national expenditures for these programs increased from $1.8 billion in 1967 to an estimated $8.1 billion in 1980, a 12.3 percent annual growth rate. The federal share of these expenditures increased from $438 million in 1967 (25 percent of the total) to an estimated $4.8 billion in 1980 (nearly 60 percent of the total)--a 20.2 percent annual growth rate.

By far the single largest program expense has been that of the school lunch program. Here also the federal share has increased from less than 20 percent of the total $1.7 billion costs in 1967, to nearly 50 percent of the $6.4 billion costs in 1980 (see Figure 2).

Figure 2

Growth in Expenditures for Child Nutrition Programs, Fiscal Years 1967-1980



SOURCE: Congressional Budget Office, see Appendix Table 1.

A more important trend in program costs, however, has been the rapid growth in other child nutrition programs over the last decade. These are almost entirely financed with federal funds. Their costs have grown from about $100 million in 1967 to over $1.6 billion in 1980, nearly a 23.3 percent annual growth rate. Preschool, afterschool, prenatal, and postnatal child nutrition programs not only have grown rapidly but also represent the largest potential for expanded program coverage (and increased costs) over the next decade.

HOW COMMODITIES FOR CHILD NUTRITION PROGRAMS ARE ACQUIRED AND DISTRIBUTED

As discussed in the previous chapter, legislation mandates that a minimum level of commodity assistance, or cash in lieu thereof, be provided in the school lunch and child-care food programs. Other programs may receive donated commodities as the USDA makes them available. Most of the foods donated to the food assistance programs are acquired under price-support or surplus-removal legislation.[1]

Within the Department of Agriculture, the Food and Nutrition Service (FNS) which administers the child nutrition programs meets regularly with representatives of the Agricultural Marketing Service (AMS), Food Safety and Quality Services (FSQS), and Agricultural Stabilization and Conservation Service (ASCS) to develop an annual purchase plan. The ASCS and FSQS are charged with the major responsibility for purchasing, writing specifications, inspecting, and distributing commodities. Factors that govern the development of the purchase plan include:

- Information on school districts' commodity preferences (types of commodities desired and specifications) as compiled by state administering agencies;
- Current availability and location of commodities in government warehouses; and
- An assessment of those commodities that are eligible for surplus removal or, based on estimates, are expected to become eligible for surplus removal.

Once the purchase plan is agreed upon, including commodity processing specifications (such as grade, quality, package or can size, and certain nutritional specifications--boned or deboned, salt and fat content), bids are solicited from processors for commodities not held in stock. Bids are also requested for processing government stocks into products usable at the school level.

A notice of intent to offer commodities is then sent to state distributing agencies, which determine the quantity of each commodity they will be able to store and distribute. Processed commodities are shipped in carload lots to central unloading points within a state. Title to these commodities transfers to the state at the time of their delivery in the state. The state distributing agency arranges for the storing, transporting, and distributing of the commodities to schools and other food donation programs within the state.

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[1] For a complete listing of legislation governing both removal and distribution of agricultural commodities see Appendix A.

A school does not have to accept all of the foods tendered to it in any school year. Under current law, a school can refuse up to 20 percent of the total value of commodities and may receive other commodities instead to the extent that they are available. But if refused commodities are not replaced with other commodities, they are nonetheless charged against the mandated level of assistance. The refused commodities are the responsibility of the state agency, which has legal title to them.

The acquisition and distribution of commodities thus involves complex planning and careful organization. The system currently costs the federal government over $860 million for commodity procurement, administrative processing, and distribution.

FEDERAL FINANCING OF CHILD NUTRITION PROGRAMS

The three major federal funding sources for the child nutrition programs are: (1) indirect support through appropriations to the Commodity Credit Corporation for net realized losses partially associated with commodity donations to the child nutrition programs, (2) indirect support through the transfer of permanent appropriations (including direct commodity purchases for the programs) out of another account--funds for strengthening markets, income, and supply—and (3) direct appropriations to the child nutrition accounts.

Figure 3 shows the general financing system used for the major child nutrition programs in 1979. It highlights the complex flow of federal funds and supporting state and local monies for the maintenance of these programs.

The Commodity Credit Corporation

The Commodity Credit Corporation (CCC) was established in 1933 to provide price support to producers of agricultural commodities through loans, direct purchases, payments, and other means.[2]

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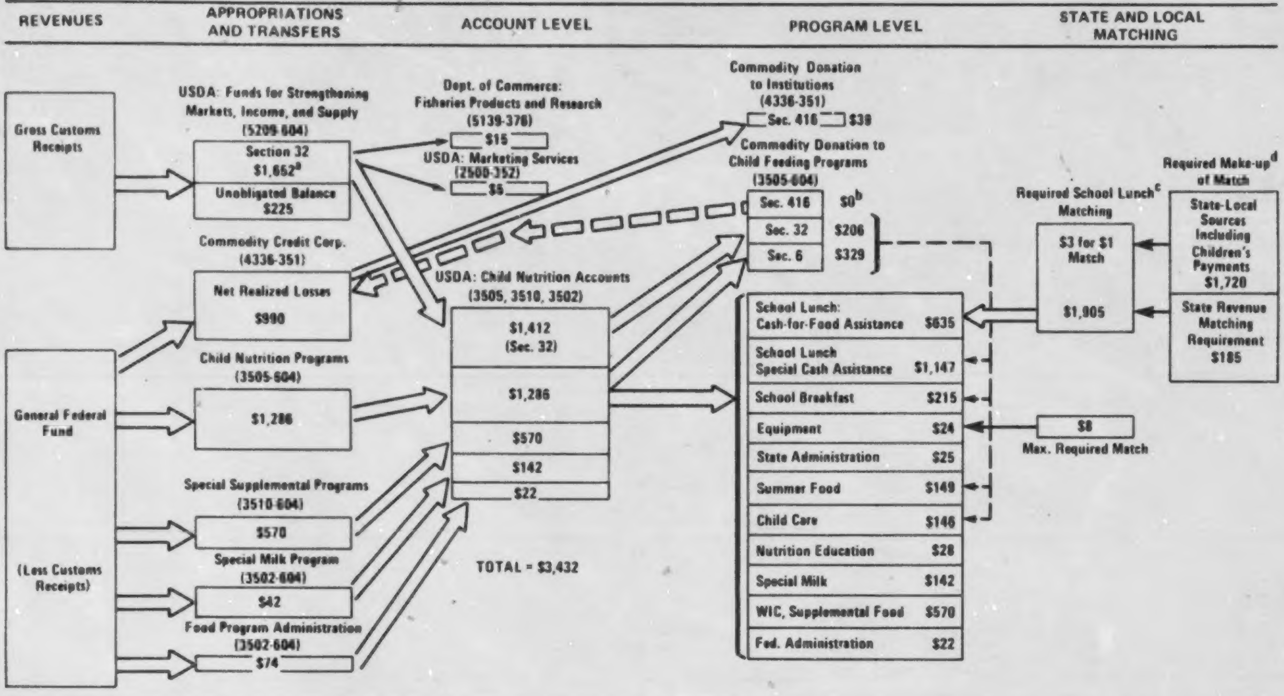
[2] Current programs used to support farm prices are authorized by the Agricultural Adjustment Act of 1938, the Commodity Credit (Continued)

Figure 3.

Federal Financing of Child Nutrition and Related Programs with State Matching Requirements, Fiscal Year 1979
(in millions of dollars, federal accounts in parentheses)


REVENUES
APPROPRIATIONS AND TRANSFERS
ACCOUNT LEVEL
PROGRAM LEVEL
STATE AND LOCAL MATCHING
Gross Customs Receipts
General Federal Fund
(Less Customs Receipts)
USDA: Funds for Strengthening Markets, Income, and Supply (5209-604)
Section 32 $1,652[a]
Unobligated Balance $225
Commodity Credit Corp. (4336-351)
Net Realized Losses $990
Child Nutrition Programs (3505-604)
$1,286
Special Supplemental Programs (3510-604)
$570
Special Milk Program (3502-604)
$42
Food Program Administration (3502-604)
$74
Dept. of Commerce: Fisheries Products and Research (5139-378)
$15
USDA: Marketing Services (2500-352)
$5
USDA: Child Nutrition Accounts (3505, 3510, 3502)
$1,412 (Sec. 32)
$1,286
$570
$142
$22
TOTAL = $3,432
Commodity Donation to Institutions (4336-351)
Sec. 416 $38
Commodity Donation to Child Feeding Programs (3505-604)
Sec. 416 $0[b]
Sec. 32 $206
Sec. 6 $329
School Lunch: Cash-for-Food Assistance $635
School Lunch Special Cash Assistance $1,147
School Breakfast $215
Equipment $24
State Administration $25
Summer Food $149
Child Care $146
Nutrition Education $28
Special Milk $142
WIC, Supplemental Food $570
Fed. Administration $22
Required School Lunch[c] Matching
$3 for $1 Match
$1,905
$8
Max. Required Match
Required Make-up[d] of Match
State-Local Sources Including Children's Payments $1,720
State Revenue Matching Requirement $185

SOURCE: Congressional Budget Office.

[a] Actual budget request and appropriation estimates for fiscal year 1979 showed Section 32 permanent appropriation $1,632,675,000.

[b] In fiscal year 1979, commodities of the type normally provided under Section 416 were to be made available with appropriations to Section 6 of the National School Lunch Act. If additional 416 commodities were required, and if they were purchased with Commodity Credit Corporation funds, then the CCC account would be reimbursed from child nutrition appropriations.

[c] The $3 for $1 matching requirements for an individual state may be adjusted downward based on the average per capita income of the state relative to the U.S. average.

[d] Under the state revenue matching requirement, state appropriations must be made in an amount no less than 10 percent of the prior-year $3 for $1 match. Most states generally appropriate more.

Large harvests in the past several years have resulted in increased government-held stocks, both here and abroad. The rebuilding of grain stocks has been a general worldwide policy designed to prevent extreme price fluctuations and help guard against famines in food-deficit countries similar to those that occurred in the early 1970s.

CCC disposes of some of its stocks through a number of outlets. Domestic sales, sales for foreign currencies (the Agricultural Trade Development and Assistance Act of 1975, Title I, Public Law 480), and sales for dollars on long-term credit (Title II of Public Law 480), make up over three-quarters of the total commodity dispositions. These activities can also generate revenues for the CCC.

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2. (Continued)
Corporation Charter Act, the Agricultural Act of 1949, the National Wool Act of 1954, the Food and Agriculture Act of 1977, and the Emergency Farm Act of 1978.

Eligibility in price support programs is usually based on the producer's agreement to also participate in programs of production control--cropland set-asides and acreage allotments. The general philosophy of the CCC programs has been to rely on production control mechanisms to bring supplies into equilibrium with demand at about the level of price support desired.

The principal method of providing price support is through nonrecourse loans to producers. The loans provide a guaranteed floor under the farm prices of particular commodities. The level of support varies by commodity and may be legislatively mandated or set by the Secretary of Agriculture within certain guidelines.

If the farmer determines after planting that prices for his commodities will be below the loan level, he may simply borrow the value of his crop from the federal government at the established loan rate. If at harvest time the commodity price rises above the loan rate, he sells the crop on the market and pays off the government loan including any accrued interest. If, however, prices remain below the loan level at harvest time, the farmer forfeits his commodity, transferring title to the government, and the loan is satisfied. Most stocks of commodities held by the government have accrued as a result of these forfeited loans.

The remaining stocks are available for domestic donations. Currently, the major domestic donation authorization for CCC price-support commodities is Section 416 of the Agricultural Act of 1949.[3]

Section 416. Section 416 of the Agricultural Act of 1949 authorizes the Secretary of Agriculture to distribute food commodities acquired under the CCC's price support activities or directly purchased with CCC funds from privately held stocks. These commodities may be distributed to the Bureau of Indian Affairs; nonprofit school lunch programs; nonprofit summer camps for children; federal, state, or private agency programs for needy persons; and charitable institutions, including hospitals serving needy persons. This same section authorizes the CCC to pay the cost of processing food commodities into a form suitable for home or institutional use, plus the costs of packaging, transporting, handling, and other charges accruing up to the time of their delivery to the designated state or private agency. Costs incurred by CCC for these activities may be reimbursed through annual appropriations for net realized losses sustained by the Corporation in prior years, but not previously reimbursed. The primary food commodities purchased and distributed under Section 416 are butter, cheese, nonfat dry milk, flour, peanut oil, peanut oil shortening, peanut butter, peanut granules, roasted peanuts, and rice.

In fiscal year 1979, 541,000 pounds of Section 416 commodities were donated to various organizations. These commodities were valued at approximately $273 million, or about 40 percent of the value of all surplus federal commodities donated in that year.

Budget Accounting Procedures for CCC. The Corporation has an authorized capital stock of $100 million and a borrowing authority of up to $30.5 billion under current law. The Corporation maintains a sufficient amount of its borrowing authority to purchase at any time all notes and other obligations evidencing loans made to it by the Treasury and other private lending agencies.

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3. Two other major authorizations for CCC donations include Section 709 of the Food and Agricultural Act of 1965, and Section 4 of the Agriculture and Consumer Protection Act of 1965. A full discussion of these may be found in a CBO technical memorandum of January 5, 1979, from G. William Hoagland to the Senate and House Committees on the Budget.

The price support and other activities of the Corporation may result in the Corporation incurring at any one time obligations in excess of its borrowing authority plus other available funds. When this situation occurs it is recorded as contract authority. The Corporation's contract authority is liquidated in future periods through appropriations or other funds available to it.

With respect to the domestic donation programs, however, an annual appropriation is made to the Corporation to reimburse it for net realized losses incurred as of the end of each year. In earlier years, the entire costs of disposing of food commodities--either those acquired under price-support activities or those purchased with CCC funds--have been included in the calculation of the net realized losses.

Beginning in fiscal year 1977, however, only the costs attributed to disposing of commodities to institutions ($60 million) were included in the net realized loss calculation subject to the annual appropriations. While the Corporation continues to acquire food commodities (of the types specified under Section 416) for distribution to schools and needy families, its costs are reimbursed directly with federal funds from appropriations made to the child nutrition, domestic feeding, and other program accounts. As a result of the 1977 change, the costs of purchasing (when not acquired under price-support activities) and disposing of agricultural commodities to schools and needy families now are attributed directly to child nutrition program costs (function 600) and not to agricultural budget costs (function 350).

Section 32: Funds for Strengthening Markets, Income, and Supply

Another major funding source for the child nutrition programs is the transfer of funds from the account commonly known as Section 32. This was established by the Agricultural Act of 1935 to enable the federal government to handle the disposal of agricultural surpluses and to encourage domestic consumption.

Section 32, as enacted, appropriates monies each fiscal year (permanent appropriation) to the Secretary of Agriculture in an amount equivalent to 30 percent of the "gross receipts from duties collected under the customs laws" for the calendar year preceding the beginning of the relevant fiscal year. The permanent appropriation remains in a separate fund. The 30 percent factor was based on the argument that roughly 30 percent of the total U.S. population lived on farms, and that Section 32 would make available for the benefit of the farmer a sum equivalent to his fair share of the tariff receipts.[4]

The uses of the Section 32 fund have varied over time. Today, however, its uses and limitations are generally agreed to include:

- Encouraging agricultural commodity exports by paying export subsidy payments or indemnities for losses incurred by processors;
- Encouraging the domestic consumption of surplus agricultural commodities by diverting them from normal channels of trade through payments of benefits, indemnities, or donations to low-income persons (a 1949 amendment directed that the supported commodities should be primarily perishable nonbasic commodities);
- Financing adjustments in the crop plantings or in the quantity of agricultural commodities produced for market;
- Limiting expenditures on any one commodity to not more than 25 percent of the total monies available in the fund; and
- Limiting the authorized level of carryover of unobligated permanent appropriations to no more than $300 million annually.

Today Section 32 funds are used primarily for the purpose of purchasing surplus, nonbasic, perishable commodities for donations to schools, institutions, and needy families. These commodities are distinguished from price-support commodities discussed in the previous section. The determination of what commodities are in surplus is made by the Secretary of Agriculture prior to acquisition. If the market price for a food commodity is less than 100 percent of parity, it may be classified as surplus.[5] Therefore, virtually all nonbasic food commodities are eligible for purchase with Section 32 funds. Recently, the major commodities purchased with Section 32 funds have included ground beef, frozen turkeys, canned and boned chickens, apple and frozen orange juice concentrates, green beans, and dry beans. These commodities usually have been rated as preferred items by state distribution agencies. In fiscal year 1979, approximately 714,000 pounds of products were purchased for domestic donations with Section 32 monies, having a value of $320 million, or about 48 percent of the total value of commodities donated that year.

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[4] House Report to accompany H.R. 8492, Agricultural Adjustment Act of 1935, June 15, 1935. In 1976, the farm population represented approximately 3.9 percent of the total U.S. population and of the total duties collected on imported commodities in 1977, approximately 9.2 percent was associated with imported agricultural commodities.

Budget Accounting Procedures for Section 32. In the past, the commodities purchased and donated with Section 32 funds appeared as obligations and outlays specific to the Section 32 budget account. As late as fiscal year 1973, accounting of Section 32 was assigned to the agriculture function of the budget. Beginning in fiscal year 1975, following a major transfer of funds from Section 32 to the child nutrition accounts, Section 32 was reassigned to the income security function.

Table 7 shows the historical growth in the permanent appropriation to Section 32 accompanying the growth in gross customs receipts. In 1950, the permanent appropriation amounted to about $125 million; by fiscal year 1980, it had reached $2.145 billion.

In fiscal year 1980, over 85 percent of the permanent appropriation was transferred to the child nutrition account. The funds after transfer lose their identity. They are used, with other directly appropriated funds, to purchase nonbasic agricultural commodities. Since more funds are being transferred than are needed to meet commodity assistance requirements (when combined with other funding sources), smaller direct appropriations to the child nutrition accounts are required.

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5. This conclusion is based on a September 13, 1967, USDA General Council Opinion, No. 150. There is no reference to a percentage of parity price in the legislation. According to the General Council Opinion: "Section 32 purchases, when made solely to accomplish the purposes of that section and not made for the additional purpose of providing price support under the 1949 Act [Agriculture Act of 1949], are not subject to limitations of that Act [with respect to maximum percentage of parity price for price support.]"

TABLE 7. HISTORICAL ACCOUNTING OF SECTION 32: FUNDS FOR STRENGTHENING MARKETS, INCOME, AND SUPPLY

			Section 32 Account Transactions				
			Total Out:	Total In:			
Fiscal Year	Gross Customs Receipts[a]	Section 32 Permanent Appropriation		Department of Commerce (Function 376)	Child Nutrition (Function 604)	Other Accounts	Unobligated Balance Available Start of Period
1950	418,690	125,607	750	-0-	-0-	750	-0-
1960	838,153	251,446	51,144	4,994	43,657	2,493	300,000
1969	1,988,820	596,646	193,855	7,413	64,325	122,117	300,000
1970	2,328,210	698,463	220,019	7,636	194,266	18,117	300,000
1971	2,429,200	728,760	264,101	7,626	238,358	18,117	300,000
1972	2,552,956	765,887	257,713	7,553	232,043	18,117	300,000
1973	3,196,957	959,087	147,324	10,042	119,165	18,117	194,476
1974	3,104,953	931,486	225,036	7,288	199,631	18,117	262,988
1975	3,397,360	1,019,209	730,794	7,751	705,926	17,117	191,005
1976	3,760,290	1,128,087	889,932	8,821	737,111	144,000[b]	120,810
TQ	942,280	282,684	118,178	1,998	20,000	96,180	100,069
1977	3,769,123	1,130,737	1,046,990	7,990	1,039,000	-0-	172,389
1978	4,640,471	1,392,141	1,027,541	12,984	1,017,683	-0-	237,696
1979	5,507,341	1,652,202	1,429,011	17,436	1,411,575	-0-	297,991
1980	7,151,840	2,168,928	1,857,765	26,679	1,831,086	-0-	197,340

SOURCES: The Budget of the United States Government, Appendix for fiscal years 1942 to 1980; fiscal year 1979 based on conference report No. 95-1579 accompanying Agriculture, Rural Development and Related Agencies Appropriations Bill, 1979; customs receipts from U.S. Department of the Treasury, U.S. Customs Service, Duty Collection by Calendar Year, November 20, 1978 Transmittal (fiscal year 1980 estimate based on calendar year 1978 data through October 1978).

a. Gross custom receipts shown in Table are for the calendar year two years preceding the beginning of the relevant fiscal year.

b. Special supplemental food program WIC.

Unobligated Balances. The Agriculture Appropriations Committees have not allowed the transfer of all Section 32 funds out of the account. They have tried over the years to maintain an unobligated balance of approximately $300 million in the Section 32 fund.[6]

The expressed legislative intent of maintaining an unobligated balance has been to provide the Secretary of Agriculture with funds necessary to remove surplus nonbasic commodities if they should occur during the fiscal year.[7] Given that the administrative definition of surplus makes nearly all commodities eligible for Section 32 purchases, maintaining an unobligated balance in the fund provides the Secretary of Agriculture with discretionary budget authority.[8] If, for example, the child nutrition programs' appropriations begin to run short toward the end of a fiscal year, the unobligated balances in the Section 32 account can be transferred, avoiding a supplemental request. From a total budget perspective, budget authority does not change as a result of such a transfer; outlays, however, increase.

In a cleaner accounting world, Section 32 would be done away with, for it causes some pointless entries in the budget accounts of the Congress and the Executive Branch. Its repeal, however, is not required for any programmatic or procedural reason. Section 32 remains on the statute books in form but not in substance.

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6. See Senate Report No. 95-1058 accompanying the Agriculture, Rural Development and Related Agencies Appropriation Bill, 1979 (August 1, 1978).

7. Unobligated balances at the start of the fiscal year were drawn down during the period 1973 to 1977 because of specific legislative approval to use Section 32 monies for the WIC program, special milk program, and a number of lesser program accounts.

8. Discussions with staff of the Appropriation Committees suggest that even if there were no legal restriction on how the unobligated balances could be spent for other than traditional market support activities (which is not at all clear), their transfer to another account would still be subject to the Appropriation Committees' reprogramming rules and require new legislation. In actual practice, however, legislation authorizing a transfer can be circumvented through a combination of reprogramming and indirect transfers.

Direct Federal Appropriations

The third funding mechanism for the child nutrition programs is the normal annual appropriation process.

Direct appropriations are made to four specific accounts: (1) child nutrition programs, (2) special milk program, (3) special supplemental food program, and (4) food program administration. The largest account--child nutrition programs--results in appropriations to the national school lunch program, the school breakfast program, the equipment assistance program, state administrative expenses associated with program administration, summer food program, child-care food program, a commodity assistance program (Section 6 of the national school lunch program), and nutrition education, studies, and training activities.

A separate appropriation account is maintained for the special milk program and the special supplemental food program, primarily WIC. The food program administration account includes the total federal administrative costs associated with all USDA domestic feeding programs. About one-quarter of this account can be attributed directly to child nutrition programs.

The level of direct appropriations is governed by: (1) the amount of monies transferred from Section 32, already discussed above; (2) statutory authorization limits; and (3) the number of program participants and legislated payment standards.

Direct Appropriations for Commodities--Section 6. The current statutory requirement of a minimum level of commodity assistance to the school lunch program and child-care food program serves as the basis for establishing budgetary needs for commodity donations. The evolution of this provision also evinces the changing focus of domestic commodity assistance toward direct cash transfers. Providing cash to schools instead of commodities is becoming a major policy issue for the food and agricultural sector and could eventually become an important budget issue as well.[9]

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[9] The National School Lunch and Child Nutrition Amendments of 1977 (Public Law 95-166) mandated USDA to conduct a study to analyze the impact and effect of cash payments in lieu of commodities as it relates to, among other issues, administration, nutrition, and producers' income. The study, published in December 1979, is discussed more fully in the final chapter of this paper.

The administrative policy has been to use Section 6 monies to purchase commodities that states have ranked as preferred items on annual preference reports.

The original Section 6 of the National School Lunch Act of 1946 allowed USDA to use funds appropriated for the school lunch program to purchase agricultural commodities for donation to schools. These Section 6 commodities along with Section 32 nonbasic commodities made up nearly 38 percent of the total federal assistance available to the school lunch program in fiscal year 1948. Along with the donation of major supplies of price support commodities in the 1960s, over 60 percent of the federal support to the school lunch program was in the form of commodities (see Table 8).[10]

The high level of federal commodity support in the 1960s led recipient organizations to develop their programs on the assumption that such levels of commodity support would continue. In 1973, Section 6 was amended to require USDA to make cash payments to states in any fiscal year when it found itself unable to deliver at least 90 percent of the commodity assistance programmed for the year (Section 32 funds were used to make cash grants), the amount of the cash payment being the difference between the value of commodities programmed and the estimated deliveries for the year.

Beginning in 1975 (National School Lunch Act and Child Nutrition Act of 1966 Amendments of 1975--Public Law 94-105), the minimum level of commodity assistance was set at 10 cents per lunch, and not less than 75 percent of the required assistance was to be provided in commodities. Cash payments were once again required for the difference in the mandated minimum value and the estimated deliveries. USDA was encouraged to purchase high-protein foods, meats, and meat alternatives with Section 6 monies. Because the state of Kansas had phased out its commodity distribution facilities before the beginning of fiscal year 1975, it has been permitted to receive cash instead of commodities. Finally,

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10. Following the Korean Conflict and throughout the 1950s, agricultural supplies far outpaced demand and CCC inventories grew from $1.3 billion in 1952 to $7.7 billion by the beginning of 1960. These stocks were gradually reduced in the 1960s under the Kennedy Administration, which placed greater emphasis on supply management programs as opposed to continuing CCC acquisition of commodities.

TABLE 8. FEDERAL CASH AND COST OF COMMODITIES DONATED TO THE NATIONAL SCHOOL LUNCH PROGRAM, FISCAL YEARS 1948-1979 (Thousands of dollars)

Fiscal Year	Cost of Commodities			Cash		Total Cash + Commodities	Percent Commodities
	(Sec. 32, 416)	(Sec. 6)	Total	Cash in Lieu of Commodities	Cash Contributions (Sec. 4, 11, 32)		
1948	19,341	13,438	32,779	--	53,948	86,727	37.8
1950	38,505	16,684	55,189	--	64,565	119,754	46.1
1960	70,916	61,108	132,024	--	93,814	225,838	58.5
1961	71,623	61,081	132,704	--	93,746	226,450	58.6
1962	113,027	69,074	182,101	--	98,760	280,861	64.8
1963	120,971	58,875	179,846	--	108,600	288,446	62.3
1964	135,660	59,270	194,930	--	120,810	315,740	61.7
1965	212,949	59,459	272,408	--	130,435	402,843	67.6
1966	116,849	58,006	174,855	--	141,090	315,945	55.3
1967	130,419	57,938	188,357	--	149,685	338,042	57.7
1968	220,456	55,520	275,976	--	159,754	435,730	63.3
1969	207,790	64,165	271,955	--	172,041	443,996	61.2
1970	200,759	64,434	265,193	--	212,637	477,830	55.5
1971	213,040	64,306	277,346	--	427,509	704,855	39.3
1972	248,038	64,030	312,068	--	462,794	774,862	40.2
1973	198,209	59,478	257,687	70,797	462,464	720,151	35.8
1974	248,818	67,284	316,102	--	664,555	980,657	32.2
1975	354,445	63,833	418,278	5,175	1,289,017	1,712,470	24.4
1976 prel.	334,431	72,463	406,894	49,562	1,489,571	1,946,027	20.9
TQ prel.	44,644	4,200	49,700	856	192,642	293,754	16.9
1977 prel.	--[a]	501,375	501,818	40,769	1,673,962	2,216,549	22.6
1978 prel.	447,900	80,000	527,900	80,676	1,825,100	2,433,676	21.6
1979 prel.	597,500	80,000	677,500	6,200	2,009,800	2,693,500	25.1

a. In fiscal year 1977, appropriations were made only to Section 6 for purchase of commodities. For fiscal years 1978 and 1979, appropriations were made to the traditional Sections 32, 416, and 6 purchasing authorities.

the minimum level of commodity assistance was also to be applied to the number of lunches or suppers served in the child food program. (Upon request, a state could receive the minimum value of commodity assistance in the form of cash for the child-care food program.)

Once again, in 1977, amendments to Section 6 permitted any school receiving commodities to refuse to accept delivery of up to 20 percent of the total value of commodities offered.

Influenced by these legislative changes, including expansion of direct cash payments, and fluctuating levels of government-held stocks, commodity assistance as a proportion of the total federal effort to the schools declined to about 20 percent in fiscal year 1978. More importantly, cash payments to schools making up the difference in actual and mandated levels of assistance grew from $5 million in 1975 to over $80 million in fiscal year 1978. Preliminary figures for fiscal year 1979 show a modest upturn in the level of commodity assistance--to 25 percent of all federal assistance provided in the NSLP--and a significant decline in cash-in-lieu payments (see Table 8).

The overall trend, howver, suggests a growing reluctance of schools and recipient groups to receive commodities. If it is assumed that schools do not purchase commodities with the cash they receive, then new outlets will have to be found in the years ahead for government stocks. Since international food policies have been moving in the direction of self-help programs as opposed to direct food aid, the balance between domestic and international disposition of accumulated stocks will also become more critical. If, on the other hand, schools use their cash to purchase commodities that would have normally been provided through price support and surplus removal activities, then the trend to cash may have little impact on producers' incomes.

STATE AND LOCAL FINANCING OF CHILD NUTRITION PROGRAMS

State and local funding is the other major source of support for the child nutrition programs. Unfortunately, little information exists at the national level on this source of funding, except for the national school lunch program. The lack of cost data plagues the federal budgeting and planning of all child nutrition programs. Recent pressure for federal funding of state and local costs must confront the fact that little is known about the extent of those costs.

Most of the nonschool programs (summer food service, child-care food programs, supplemental food programs) receive state and local support, including a significant level of volunteer services. A recent USDA study of the summer food service program, for example, found that a major alternative source of funding for that program was the Comprehensive Employment Training Act (CETA).[11] Other sources of funding include: (1) Neighborhood Youth Corps, funded by the U.S. Department of Labor; (2) Youth Service Corps, also funded by the Department of Labor; and (3) Community Action Council, funded through ACTION. The actual level of support, however, is unknown.

Matching Requirements. Only two programs--the national school lunch program and the food equipment assistance program--have major state matching requirements. A small matching effort is required from the states for their administration of the nutrition education and training program.

In the equipment program, cash grants to states for purchasing food service equipment are made on the condition that at least one-fourth of the cost is funded from sources within the state. Generally, this means from the individual school receiving the apportioned federal funds. Schools defined as especially needy are excluded from the matching requirement. In fiscal year 1979, approximately $8 million in state and local matching funds combined with $24 million in federal funds to support the program.

In the school lunch program, states must match each federal dollar of general cash-for-food assistance with three dollars of funds from within the state (3 to 1 match). This requirement can be adjusted downward in any state with a per capita income less than the national average per capita income.

State funds can be drawn from a number of sources, including: (1) state and local expenses for program administration; (2) the value of services, supplies, facilities, local commodities, and equipment donated to the program; and (3) children's payments for food service. A second provision mandates that state revenues be appropriated to the program. These appropriated monies count toward the matching requirement and are referred to as the state revenue matching requirement (SRMR). Currently, the SRMR is calculated as 10 percent of the state's previous-year 3 to 1 match.

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11. A Study of Factors Affecting Meal Quality Under the Summer Food Service Program for Children, U.S. Department of Agriculture (January 1978).

In fiscal year 1975 (the latest year of available state data), the total 3 to 1 match required of the states was $1.270 billion. The SRMR was $66 million. State and local resources devoted to the program exceeded nearly $2.140 billion, almost two times the required match. Children's payments alone to the program exceeded the matching requirement--$1.295 billion. Monies appropriated to the program by the states totaled $226.9 million--over three times the required SRMR. It thus appears that states have little difficulty in meeting the federal matching requirements established for the school lunch program.

Growing Federal Share. Beginning about fiscal year 1975, the federal government's share of the school lunch program began to grow as a result of legislation expanding federal payment standards. By fiscal year 1977, the federal share of total costs had increased to approximately 50 percent (see Table 9). Growth in the federal sector has resulted in reduced costs for participating children. Approximately 30 percent of program costs in 1977 was borne by children. State and local governments have essentially maintained their same relative share of program costs over the last 20 years, remaining at 21.6 percent in fiscal year 1977.

TABLE 9. TOTAL FUNDING BY SOURCE FOR THE NATIONAL SCHOOL LUNCH PROGRAM, FISCAL YEARS 1960-1977 (Thousands of dollars)

	Federal Sources	State and Local Sources				All Sources	Share of Total Program Costs		
Fiscal Year	Cash and Commodities	Children's Payments	Governments	Other	Total		Federal	State and Local Governments	Children
1960	225,839	555,707	92,608	127,522	775,837	1,001,676	22.5	22.0	55.5
1961	226,450	594,840	94,943	134,898	824,681	1,051,131	21.5	21.9	56.6
1962	280,861	642,374	93,920	151,519	887,813	1,168,674	24.0	21.0	55.0
1963	288,446	694,030	97,076	156,377	947,483	1,235,929	23.3	20.6	56.1
1964	315,740	741,856	103,260	166,323	1,011,439	1,327,179	23.8	20.3	55.9
1965	402,843	797,572	113,682	178,700	1,089,954	1,492,797	26.9	19.7	53.4
1966	315,946	852,773	122,004	210,380	1,185,157	1,501,103	21.0	22.2	56.8
1967	338,042	925,018	146,527	253,966	1,325,512	1,663,554	20.3	24.1	55.6
1968	435,730	995,756	161,973	278,551	1,436,280	1,872,010	23.3	23.5	53.2
1969	475,752	1,041,241	154,979	320,277	1,516,497	1,992,249	22.6	24.3	53.1
1970	565,450	1,104,959	185,056	361,595	1,651,610	2,217,060	22.4	25.7	51.9
1971	809,546	1,090,209	216,377	376,944	1,683,531	2,493,077	29.5	24.9	45.6
1972	1,050,831	1,080,449	270,279	328,726	1,679,454	2,730,285	31.6	24.4	44.0
1973	1,139,850	1,123,656	297,573	395,099	1,816,327	2,956,177	28.4	27.3	44.3
1974	1,401,418	1,173,969	412,012	385,007	1,970,987	3,372,405	33.2	26.8	40.0
1975	1,707,296	1,308,491	441,996	406,792	2,157,280	3,864,576	44.3	21.9	33.8
1976	1,893,500	1,310,000	930,000		2,240,000	4,133,500	46.5	22.2	31.3
TQ	244,200	155,000	130,000		285,000	529,200	50.8	24.6	29.3
1977	2,120,200	1,290,000	960,000		2,250,000	4,370,200	49.6	22.0	29.5

SOURCES: Fiscal Year 1975 Statistics and Historical Tables, U. S. Department of Agriculture, Food and Nutrition Service (September 1975), and Fact Sheet on Child Feeding Programs, U. S. Department of Agriculture, Food and Nutrition Service (March 1980).

CHAPTER V. THE AGRICULTURAL SUPPORT AND NUTRITIONAL IMPACT OF THE CHILD NUTRITION PROGRAMS

The two major goals of the federal child nutrition programs have been: (1) to encourage the domestic consumption of agricultural commodities and thus strengthen the nation's agricultural economy, and (2) to safeguard the health and well-being of the nation's children. These two goals have evolved over the programs' long history and both will continue to receive differing emphases throughout the 1980s.

In the early years of the programs, federal agricultural policies played the dominant role. The consequence of this emphasis can still be seen in the programs' administrative and financing systems. The original emphasis on distributing surplus agricultural commodities to school feeding programs has diminished; federal cash contributions are now the dominant instrument, and these provide a less direct mechanism for agricultural support.

The primary goal of the child nutrition programs has become one of improving the health and well-being of children of all ages and income levels. Toward this end the original programs have been expanded to cover greater numbers of children, particularly at lower income levels, while new programs have been created to serve specific groups such as women, infants, and preschool children. The newer programs targeted on specific low-income groups that are likely to be nutritionally at risk seem to have been more successful than the older (and more costly) programs which serve a wide array of income groups.

IMPACT OF CHILD NUTRITION EXPENDITURES ON AGRICULTURE

The Department of Agriculture acquires and distributes commodities for the nutrition programs through the mechanism outlined in the previous chapter. This system provides some degree of market support for certain commodities that are not covered by the farm price support programs. Often the USDA accumulates large stocks of those commodities. How much impact do these purchases have on farm incomes?

Given that, today, schools and other outlets for surplus commodities are assured of a statutorily defined minimum level of commodity assistance, they can formulate their own budgetary needs on the basis of a guaranteed level of assistance. Commodity assistance may substitute, then, for what normally would have been purchased by these organizations. Substitution has probably increased under provisions allowing the recipient organization to refuse a certain amount of donated commodities and to take cash instead. The consequence is to diminish somewhat the role played by the nutrition programs in offsetting instability in agricultural markets.

Foods purchased in the child nutrition programs represented about 2.5 percent of total national food expenditures in 1978 (see Table 10). Excluding out-of-pocket children's payments (the minimum portion that, one may assume, would have been spent on food even in the absence of a program), the programs accounted for less than 2 percent of total food expenditures.[1] The value of agricultural commodities distributed through the programs has declined to the point where today they represent less than half of one percent of total food expenditures.

Estimates indicate that in 1978 total child nutrition food expenditures of $5.9 billion translated into additional farm income of about $1.9 billion (see Table 10). This additional farm income represents about 1.5 percent of total gross farm income in 1978.

Thus, child nutrition food expenditures have, in the aggregate, a minor impact on gross farm income. Disaggregated at the level of specific commodities, however, some market impact may

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1. This is clearly a high estimate of the net additional food expenditures generated by the programs. Analyses discussed later in this chapter find that, in the lunch program, participants did not measurably increase caloric consumption relative to nonparticipants or to children not having the program available to them. This suggests a high level of substitution for normal food purchases. A recent Washington State study found that children receiving meals free had a 30 percent net increase in their demand for food (70 percent substitution). See David W. Price, and others, Evaluation of School Lunch and School Breakfast Programs in the State of Washington, Parts 1 and 2 (Washington State University, September 1976).

TABLE 10. CHILD NUTRITION FOOD EXPENDITURES, THEIR SHARE OF TOTAL FOOD EXPENDITURES AND THEIR CONTRIBUTION TO GROSS FARM INCOME, 1967-1978 (In billions of dollars and percent)

		Child Nutrition Food Expenditures		Child Nutrition Food Expenditures as a Percent of Total Food Expenditures		Farm Income		
Year	Total Food Expenditures	Total	Commodities	Total	Commodities	Total Gross Farm Income	Farm Value of Child Nutrition Food Expenditures	Percent of Gross Farm Income Associated with Child Nutrition Expenditures
1967	95.0	1.8	0.3	1.9	0.3	47.4	0.6	1.3
1973	146.8	3.2	0.7	2.2	0.5	96.3	1.2	1.2
1974	166.9	3.6	0.5	2.2	0.3	97.8	1.3	1.3
1975	184.8	4.3	0.5	2.3	0.3	99.5	1.4	1.4
1976	200.2	4.7	0.5	2.4	0.3	101.0	1.5	1.5
1977	217.9	5.2	0.4	2.4	0.2	106.7	1.6	1.5
1978	239.4	5.9	0.5	2.5	0.2	124.2	1.9	1.5

SOURCES: Data for food expenditures from U.S. Department of Commerce, Survey of Current Business. Food expenditures exclude value of beverage. Gross farm income, excluding government payments, from U.S. Department of Agriculture, Farm Income Statistics, Statistical Bulletin No. 609 (July 1978). The estimate in the next-to-last column was derived by multiplying the ratio of farm value of total food expenditures to total food expenditures by the total food expenditures in the child nutrition programs. Farm value of total food expenditures was taken from U.S. Department of Agriculture, Agricultural Outlook, AO-49 (November 1979).

be likely. For example, Section 32 purchases of canned peaches in the 1977-1978 market season accounted for over 2.5 percent of the total canned peaches sold that season. Further, Section 32 purchases of peaches packed under the specification of large-size cans made up nearly 25 percent of the market in 1977-1978. Section 32 purchases of turkeys accounted for 3.3 percent of the total market in 1978.

IMPACT ON HEALTH AND NUTRITIONAL STATUS

What effect have these programs had on children's nutritional and health status? Few studies have been made of their effect on children nationally, and even fewer of their impact on particular income groups. This is due in part to the complexity of the nutritional programs, and in part to the difficulty of analyzing all the factors involved. The biological complexities of nutrition, and its interaction with physiological, environmental, cultural, social, and economic factors make it difficult to isolate precisely the nutritional impact of participating in a government program.

Health and Malnutrition in Children

What are the nutritional problems that are to be addressed by government intervention? Hunger and severe malnutrition are not serious public health problems in the United States today although some subgroups of the population may be affected.[2] Despite some limited cases of severe malnutrition found by the Senate Subcommittee on Employment, Manpower and Poverty in the Mississippi delta in 1967, statements that severe malnutrition exists on a national scale have never been documented, even during the early years of the "War on Poverty" programs.

Malnutrition, as found in developed countries today, may be defined as an intake of one or more nutrients at such insufficient levels that the person is placed in high risk of acquiring specific clinical signs of deficiency or abnormal physical development.

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[2] "Hunger" is a nonscientific term. It has been described as a craving for food, a weakened condition brought about by the lack of food, and an urgent need for food. Prolonged hunger will create a condition of severe malnutrition with definable clinical and physiological signs.

Infancy. While infant mortality in the United States has declined steadily since the 1900s--reaching a record low of 13 infant deaths per 1,000 live births in 1979--the rate still is above that of major European countries and varies significantly among socioeconomic groups. Infant mortality is nearly twice as high for blacks as for whites. Prematurity and low birth weight are also twice as common for blacks and other minorities as for whites.

Pregnant women lacking proper nutrition have a greater than average chance of bearing low-birth-weight or stillborn babies. Maternal nutrition is a critical factor for infant health. Low birth weight represents the major threat to infant survival. Prenatal counseling and alterations in social habits such as smoking and drinking can be just as important, however, as proper nutrition in averting low-birth-weight babies. Expectant mothers under age 15 and mothers with existing medical conditions (some of which are diet-related, such as hypertension and diabetes) have the highest probability of premature births.

Childhood. Nutritional habits developed in childhood can affect health throughout life. In the United States few persons have ever experienced the more debilitating childhood nutritional diseases (protein-calorie marasmus or kwashiorkor, diarrheal diseases, scurvy, rickets, beriberi, goiter, pellagra, xerophthalmia) which have all but been eradicated as public health problems in this country. It is possible, however, that marginal nutritive intake and poor dietary habits during childhood may be related to the major health problems of today's adults: heart disease, some forms of cancer, stroke and hypertension, diabetes, arteriosclerosis, and cirrhosis of the liver.

One nutritional disease--iron-deficiency anemia--is common in pregnant women, infants, and young children. Some 14 percent of all children are estimated to be anemic, the great majority of them because of iron deficiency.[3] Another widespread defect is obesity--a risk factor for hypertension, heart disease, and diabetes in adults--which frequently begins during childhood. An obese child is at least three times more likely than other children to become an obese adult. Obesity is prevalent at all socioeconomic levels. Nearly 35 percent of the women between ages 45 and 64 with incomes below the poverty level, and 29 percent of those with incomes above that level, are considered obese. Further, increased proportions of fat and sugar in children's diets may explain an increase in coronary arteriosclerosis in seemingly healthy young people in their late teens.

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[3] Helen S. Mitchell, Henderika J. Rynbeyen, and others, Nutrition in Health and Disease (J. B. Lippincott Company, 1976); Healthy People, Surgeon General's Report on Health Promotion and Disease Prevention, U.S. Department of Health, Education and Welfare (July 1979); Caloric and Selected Nutrient Values for Persons 1-74 Years of Age, National Center for Health Statistics, Vital and Health Statistics, Series 11-No. 209 (Continued)

Overall, then, improvement in children's diets is likely to be critical in influencing their future health status. Improved health status in early years has been found to be an important determinant of intelligence, years of formal schooling completed, market wage rates, and hours of work.[4] The rapid growth in federal child nutrition program expenditures could thus be justified as offering a long-term return to society through improved worker productivity, reduced unemployment, and lower welfare and health expenditures. This assumes that child nutrition program participation does in fact result in improved diets; the remainder of this chapter will examine that hypothesis.

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3. (Continued)
(June 1979); and Barbara Stanfield, "Iron-Deficiency Anemia," in vol. II, Harvard Child Health Project, Children's Medical Care Needs and Treatment (Ballinger Publishing Company, 1977).

[4] Herbert G. Birch and Joan Dye Gussow, Disadvantaged Children: Health, Nutrition and School Failure (Harcourt, Brace and World, Inc., 1970); Michael Grossman and Lee Benham, "Health, Hours and Wages," in Mark Perlman, ed., The Economics of Health and Medical Care (London: MacMillan 1974); Michael Grossman, "The Correlation Between Health and Schooling," in Nester E. Terleckyj, ed., Household Production and Consumption (Columbia University Press for the National Bureau of Economic Research, 1975); Donald O. Parsons, "Health, Family and Labor Supply," The American Economic Review, vol. 67, no. 4 (September 1977); and Harold S. Luft, "The Impact of Poor Health on Earnings," The Review of Economics and Statistics, vol. LVII, no. 1 (February 1975).

Nutritional Evaluations

A great deal of fragmented evidence has been collected documenting the benefits of the child nutrition programs. These ad hoc assessments have served as the major evaluations supporting the continued growth and expansion of the programs.[5] Consistent and reliable data have not existed, however. In both 1974 and 1977 the USDA issued reports stating that:

> Relatively few carefully designed studies have been conducted to evaluate the effect of these programs on the nutritional status of participating children. Additionally, it is doubtful that a study can be expected to measure quantitatively the impacts of a specific food program on the basis of nutritional status of children who receive only one-sixth of their annual meals from a program.[6]

Only recently has the USDA begun to contract for nationally representative studies of the nutritional effectiveness of the various programs.

Evaluations of Nonschool Nutritional Programs. Of the nonschool programs, only the WIC program has been seriously evaluated. In general, despite some measurement and control group problems, WIC has been found to be medically successful. To the extent that the program has been targeted on a specifically defined population at risk and includes a strong health component, this result is not surprising. One study has suggested that the

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[5] A recent Field Foundation report on hunger, discussing a few scientific studies, is an example of the most prevalent type of study used to develop federal nutrition policy. Nick Kotz, Hunger in America: The Federal Response (Field Foundation, 1979). See comments on the report by George G. Graham, The Johns Hopkins University, School of Hygiene and Public Health (December 1979).

[6] U.S. Department of Agriculture, Comprehensive Study of the Child Nutrition Programs (July 1974) and Evaluation of the Child Nutrition Programs, Background Paper (June 1977).

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program increased utilization of other health care services by serving as a conduit into the health care system.[7]

A medical evaluation of participants in 9 WIC projects in 14 states between 1973 and 1976 found that low-birth-weight infants who participated in the program showed accelerated weight and height gains and reduced levels of anemia. The study also found that pregnant women who participated in WIC showed increased weight gain during pregnancy and reduced anemia, and that their children had higher birth weights.[8] Studies in Louisiana in 1972 and in Massachusetts from 1973 to 1978 found similar results.[9]

Evaluations of School Lunch and School Breakfast Programs. Recent evaluations of the school lunch and breakfast programs have been less conclusive. One study analyzed the effect of school lunch and school breakfast participation on a sample of Washington State school children. This study found that participants in the school lunch program increased their intake of five of ten nutrients studied--protein by 5 percent, calcium by 10 percent, phosphorus by 6 percent, vitamin A by 13 percent, and riboflavin by 8 percent. Milk is a good food source for three of these nutrients and therefore may be the major contribution to the child's diet when participating in the program. The school

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7. Marc Benedict, Jr., Toby H. Campbell, D. Lee Bawden, and Melvin Jones, Toward Efficiency and Effectiveness in the WIC Delivery System (The Urban Institute, Washington, D.C., April 1976).

8. J. C. Edozien, B. R. Switzer, and R. B. Bryan, Medical Evaluation of the Special Supplemental Food Program for Women, Infants and Children (WIC) (Department of Nutrition, University of North Carolina, July 1976).

9. E. Kennedy, "An Evaluation of the Effects of the WIC Supplemental Feeding Program on Pre-Natal Patients in Massachusetts," Harvard School of Nutrition, Ph.D. Thesis (1978); and R. A. Langham, B. W. Dupree, and others, "Impact of WIC in Louisiana," (Baton Rouge, Division of Health, 1976). Recently the USDA entered into a contract with the Research Triangle Institute, North Carolina, to conduct an expanded health and nutrition evaluation of the WIC program.

breakfast program participation was found to increase the consumption of vitamin C by nearly 42 percent.[10]

Between 1968 and 1970, school lunch participation data were collected in the national Ten State Nutrition Survey on children between the ages of 10 and 16. A study of these data concluded that participation in the school lunch program increased the consumption of specific nutritients by between 20 and 50 percent.[11] The largest impact was found among participating children from low-income states.

An Evaluation of Three Child Nutrition Programs

The remainder of this chapter presents results from a national analysis of the nutritional effectiveness of three child nutrition programs--the school lunch, school breakfast, and milk programs.[12] Dietary and biochemical data from the first Health and Nutrition Examination Survey (HANES) have been analyzed.[13]

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[10] See: David W. Price, Donald A. West, and others, "Food Delivery Programs and Other Factors Affecting Nutrient Intake of Children," *American Journal of Agricultural Economics*, vol. 60, no. 4 (November 1978).

[11] *Ten State Nutrition Survey, V-Dietary*, Department of Health, Education and Welfare, Center for Disease Control (72-8133).

[12] More technical descriptions of the data base and modeling procedures can be found in previous papers: "The Impact of Federal Child Nutrition Programs on the Nutritional Status of Children," G. William Hoagland, paper presented at the Southern Economic Association Meeting (November 1978); "The Nutritional Effectiveness of Three Federal Child Nutrition Programs: United States 1971-1974," G. William Hoagland, paper presented at the American Agricultural Economics Association Meeting (July 1979).

[13] The data, collected on a consistent basis, were designed to be representative of the civilian noninstitutionalized population in the age range 1-74 years. This analysis examined a subset of the survey population, children reported in school between the ages of 6 and 21 years. The subsample (Continued)

Dietary Analysis. Information on food intake was obtained by asking children what they had eaten on the day preceding the interview. Those whose diets were atypical were excluded from the analysis. Standards of dietary intake by age and sex were established for: food energy (calories), protein, calcium, iron, vitamins A and C, niacin, thiamin, riboflavin, and phosphorus.[14] Each child's nutritional standing was measured in terms of a Nutrient Adequacy Ratios (NAR) for the ten nutrients. The NAR for a particular nutrient was the ratio of the child's daily intake of that nutrient to the recommended dietary allowance (RDA).[15] The NARs were combined into a composite nutrient index, defined as a mean adequacy ratio (MAR).[16] The MAR over the entire sample averaged 85.3 percent.

Results for Single-Program Impact. On the average, the NARs usually exceed standard requirements (see Appendix Tables C-2 and C-4). Only in the case of a few nutrients (food energy-calories, iron, and niacin) do the overall data suggest insufficent levels

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13. (Continued) consisted of 3,155 observations weighted to represent 35,854,168 children nationally for the period 1971 to 1974. The population of child nutrition program participants, nonparticipants, and children reporting not having access to a program (that is, nonavailables) was developed from a cluster of questions asked in households where sample children were attending school. Children who were surveyed during nonschool months were excluded from this analysis.

[14] HANES standards for energy, protein, calcium, iron, and vitamins A and C were used for this analysis. These standards differ only slightly from standards adopted by the World Health Organization (WHO) and the Food and Nutrition Board of the National Academy of Sciences. Standards for all other nutrients analyzed were based on the National Academy of Sciences' recommended dietary allowance (RDA).

[15] The NAR is expressed as a percentage, 100 percent representing intake of the nutrient meeting recommended dietary allowance.

[16] The MAR was calculated as the simple average of the ten adequacy ratios, each truncated at a maximum of 100 percent of RDA. This was done so that extreme overconsumption of one nutrient did not compensate for extreme underconsumption of another nutrient.

of consumption. When examined further, however, the data show that a substantial proportion of children fall below two-thirds of the standard requirement for several nutrients--40 percent for iron, 34 percent for food energy, and about 30 percent for niacin and vitamins C and A. Relative to other nutrients, children appear to consume adequate levels of protein: only about 10 percent of the child population fall below two-thirds of the recommended daily allowance for protein.

Table 11 presents average NARs for single-program participants and for a control group of children not having a program available to them.[17] Breakfast program participants increased their overall MAR by over 9 percentage points. The limited sample size for children who participated in only a breakfast program suggests that extreme caution should be given to the finding that breakfast participants benefited the most fromprogram participation.[18]

The comparison of the average NARs and overall MAR suggest little nutritional benefit from lunch program participation and a slightly significant increase in the nutritional status of milk-only participants. Milk program participants increased their MAR by 4 percentage points, from 85.5 percent to 89.5 percent.

Multiple Program Participation. Table 12 combines data for children in various programs and contrasts the MAR for multiple-program participants with that for single-program participants. (See Appendix Tables C-3 and C-5 for NAR estimates.) Only in the case of children who participated in both a lunch and a breakfast program was there a significant increase in the MAR compared to average MAR for participants in one or the other program but not in both. Children who participated in all three programs did not necessarily have better diets than those who participated in only one of the three programs.

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[17] Appendix Tables C-6, C-7, and C-8 show a comparison of NARs between participants and children having a program available but not participating by income groups. It was felt that in order to minimize the selection bias inherent in comparing participants and nonparticipants, the appropriate comparisons should be made between participants and nonavailables as shown throughout the text.

[18] The data are pooled later, and the results suggested in Table 11 concerning the breakfast program continue to hold.

TABLE 11. COMPARISON OF NUTRIENT ADEQUACY RATIOS FOR PARTICIPANTS (P_1) AND NONAVAILABLES (P_3) FOR THREE CHILD NUTRITION PROGRAMS (In percent)[a]

Nutrient	Breakfast Only			Lunch Only			Milk Only		
	P_1	P_3	DIFF.[b] (P_1-P_3)	P_1	P_3	DIFF.[b] (P_1-P_3)	P_1	P_3	DIFF.[b] (P_1-P_3)
(n)	3	409	--	535	207	--	249	252	--
Energy	114.1	87.3	25.9^c	85.6	85.8	-0.2	91.9	85.0	6.9^c
	(11.75)	(2.36)	(11.75)	(1.91)	(3.03)	(3.30)	(2.69)	(2.50)	(3.41)
Protein	224.1	169.2	54.9^c	168.3	165.7	2.6	186.8	163.8	23.0^c
	(13.57)	(4.71)	(14.24)	(5.57)	(6.49)	(8.39)	(5.82)	(5.10)	(8.37)
Calcium	216.2	192.8	23.4	189.4	184.3	5.1	226.8	189.5	37.3^c
	(18.44)	(5.86)	(19.49)	(5.50)	(8.23)	(10.08)	(8.06)	(7.96)	(13.08)
Iron	120.1	91.2	28.9^c	85.9	90.3	-4.3	93.8	88.5	5.2
	(10.96)	(3.41)	(11.05)	(1.89)	(4.07)	(4.70)	(4.32)	(3.20)	(5.27)
Vitamin A	233.3	138.0	95.3	153.2	151.8	1.4	172.0	144.9	27.2
	(71.54)	(10.46)	(72.32)	(7.65)	(15.29)	(18.03)	(12.21)	(12.80)	(18.43)
Vitamin C	533.1	201.6	331.5^c	180.6	213.6	-33.0^d	237.9	205.5	32.4
	(164.30)	(14.85)	(163.93)	(9.27)	(18.91)	(18.94)	(12.69)	(17.74)	(21.35)
Niacin	185.5	100.5	85.0^c	96.6	97.4	-0.8	105.9	96.9	9.0
	(20.38)	(3.62)	(20.23)	(2.07)	(3.76)	(4.34)	(4.85)	(3.79)	(6.98)
Thiamin	156.3	120.3	36.0	111.9	116.3	-4.4	124.4	120.2	4.1
	(22.21)	(4.00)	(22.16)	(1.86)	(5.66)	(5.60)	(5.21)	(5.57)	(6.63)
Riboflavin	148.2	162.7	-14.4	161.1	158.6	2.5	188.8	159.3	29.6^c
	(15.33)	(4.55)	(16.15)	(2.97)	5.17	(5.92)	(5.03)	(5.59)	(8.74)
Phosphorus	188.2	132.7	55.4^c	131.5	127.0	4.5	147.5	129.9	17.6^c
	(22.15)	(3.15)	(22.33)	(3.10)	(4.23)	(5.60)	(4.25)	(4.15)	(6.71)
Mean Adequacy Ratio	95.4	86.1	9.4^d	85.9	85.8	0.1	89.5	85.5	4.0^c
	(4.81)	(0.85)	(4.76)	(0.70)	(1.15)	(1.42)	(0.79)	(0.99)	(1.35)

NOTE: P_1 defines the population that participated in the specific program; P_3 defines the total population that had the specific program available to them.

a. Standard errors of the means and standard errors of the difference in means shown in parentheses.

b. Standard errors for differences in the means were calculated using procedures outlined in B. V. Shah, STDERR; Standard Errors Program for Sample Survey Data (Research Triangle Institute, 1976).

c. Indicates difference between means is significant at the 5 percent level.

d. Indicates difference between means is significant at the 10 percent level.

TABLE 12. MEAN ADEQUACY RATIOS (MAR) FOR MULTIPLE PROGRAM PARTICIPATION AND FOR SINGLE AND DUAL PROGRAM PARTICIPATION[a]

	Participation Status		Difference (Multiple - Single)
	Both (All) Programs	One or the Other Program	
Breakfast and Lunch	91.90 (1.85)	85.99 (0.70)	+5.91[b] (1.89)
Breakfast and Milk	91.73 (5.28)	89.59 (0.79)	+2.14 (5.26)
Lunch and Milk	88.03 (0.54)	87.29 (0.54)	+0.74 (0.80)
Breakfast, Lunch, Milk[c]	90.18 (2.10)	87.32 (0.54)	+2.86 (2.12)

SOURCE: Health and Nutrition Examination Survey, 1971-1974.

a. Standard error of MAR and difference of MAR in parentheses.

b. Indicates difference in mean significant at the 10 percent level.

c. The comparison shown in the table is between participating in all three programs as against participating in only one. When the comparison is made between participating in all three programs versus any combination of two programs, the MAR for dual program participants is 88.11 with a standard error of 0.53. The negative difference in the means (-2.07) has a standard error of 2.22, and is not significant at the 10 percent level.

Other Factors Affecting Children's Nutritional Status. A comparison of simple averages does not allow for other factors, besides program participation, that can affect nutritional status. Factors such as family income, age of the household head, sex of the household head, education of parents, race, and region of the country were also brought into the picture.[19] It was found that family size, education of the family head, and geographical area were important factors in children's diets.

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[19] See Appendix Table C-9 for results of the generalized linear regression model used to estimate the marginal impact of program participation, holding other factors constant.

Family income was not, in general, an important factor in determining the adequacy of children's diets. Other factors such as age, sex, region, and the education of the family head appear to swamp any impact income has on nutritional status. Only in the case of caloric intake (energy) and the overall index (MAR) did income affect nutritional adequacy. In the case of energy, higher family income is paradoxically associated with a decline in the child's energy intake as a percent of the recommended standard. This finding has also appeared in the nutritional evaluation of the Washington State school children.

Larger family size was consistently associated with lower NARs and MAR. Increased education of the family head showed generally positive and significant NARs and MAR for the children in the family.

The regression analysis indicated a decline in nutritional adequacy with age; this was particularly true for older, female children. Region of the country appears to be an important factor in dietary status, suggesting the limitations of prior studies for broad federal policy conclusions. Relative to the western and northeastern regions of the country, children residing in the south and midwest had lower NARs and MAR.

Program Impact by Poverty Status. The analysis was extended to determine the effect of nutrition programs on poor children as compared with other children. This was done holding constant other factors such as children's participation in other programs, and the various socioeconomic factors.

Participation in the school breakfast program results in improved diets for all children regardless of income class (see Table 13). Poor children (family income less than 125 percent of poverty) increased their MAR by approximately 3.1 percentage points; children in the 125 to 195 percent income range increased their MAR by 5.6 percentage points; and the limited number of breakfast participants in the high-income range increased their MAR by 7.9 percentage points. These changes were judged to be more than would have been expected from random chance.

Low-income lunch participants increased their MAR more than higher-income lunch participants. The increases in MAR, however, were less for all groups when compared to breakfast participants.

TABLE 13. IMPACT OF FEEDING PROGRAMS ON NUTRIENT ADEQUACY RATIOS OF CHILDREN BY POVERTY STATUS (Change in percentage points)[a]

	Less than 125% of Poverty Level			125% to 195% of Poverty Level			More than 195% of Poverty Level		
Nutrient	Breakfast	Lunch	Milk	Breakfast	Lunch	Milk	Breakfast	Lunch	Milk
Energy	27.8	-9.1	2.8	0.9	4.7	-6.3	25.5	-0.3	-1.4
Protein	71.8	6.6	8.2	-0.6	13.1	-6.9	76.9	6.5	1.0
Calcium	30.2	2.1	-2.9	19.1	16.2	8.8	24.9	5.3	8.2
Phosphorus	32.6	-0.6	-2.0	5.3	13.6	-1.1	51.9	3.0	3.4
Vitamin A	-161.4	35.4	11.9	24.5	25.1	-32.7	64.8	-14.9	26.7
Thiamin	31.9	-9.3	3.5	11.1	-2.4	-14.1	34.7	-8.9	2.3
Riboflavin	16.2	14.5	1.3	12.7	14.1	1.6	23.6	-1.9	12.6
Vitamin C	-7.1	-25.9	9.1	27.3	-3.0	-11.1	214.9	-27.6	14.3
Mean Adequacy Ratio	3.1	2.2	0.2	5.6	1.3	0.9	7.9	0.9	0.3

a. See Appendix Tables C-6, C-7, and C-8 for more detail.

Poor children participating in the lunch program increased their MAR by 2.2 percentage points, while nonpoor lunch participants increased their MAR by less than 1 percentage point. These differences, however, were not found to be significant.

Milk program participants showed the least overall improvement in their MAR. This was true both within poverty groups and between poverty groups. These results, however, were also judged to be insignificant.

Composition of Diets. The data analyzed thus far indicate variability both in the overall nutritional status of participants and nonparticipants, and in the level of adequacy of various nutrients. This section summarizes the composition of the diet measured by the proportions of energy received from the three energy sources—carbohydrates, protein, and fat. While no generally agreed upon standards exist for these measurements, the former Senate Nutrition Committee's dietary goals of 1977 provide a general reference point for comparing the programs.[20]

The Committee recommended that the population increase its consumption of carbohydrates from 46 percent to 58 percent of total energy intake, increasing complex carbohydrates and naturally occurring sugars while reducing the consumption of refined and processed sugars.

The Committee also recommended that overall fat consumption be reduced from 42 percent to 30 percent of energy intake. In addition, an American Heart Association report recommended that children with high cholesterol levels be placed on a fat-modified diet such that no more than 35 percent of their energy would be derived from fat. The Committee recommended that protein consumption make up 12 percent of total energy intake, and that salt consumption be reduced to 5 grams a day (2,000 mg. of sodium).

Accepting these various goals, the diets of the three groups of participants, of the comparison group, and of all children fail. The nutrient consumption of the children analyzed shows a high proportion of total caloric intake derived from fat and protein sources (see Table 14). Carbohydrate consumption as a proportion of energy needs is low relative to stated goals, though it is impossible to estimate whether the mix of the carbohydrates

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[20] U.S. Senate, Dietary Goals for the United States, Second Edition, Select Committee on Nutrition and Human Needs (December 1977); similar dietary recommendations were recently published by the U.S. Department of Agriculture, Nutrition and Your Health, Dietary Guidelines for America (February 1980).

TABLE 14. PROPORTIONS OF DAILY CALORIC INTAKE FROM CARBOHYDRATES, PROTEINS, AND FATS, AND SODIUM INTAKE, BY CHILD NUTRITION PROGRAM PARTICIPATION STATUS[a,b]

	Percent of Caloric Intake from:			
Program Participation Status	Carbohydrates	Protein	Fats	Sodium Intake (milligrams)
Comparison Group	58.0	12.0	30.0	2,000.0
National School Lunch Only:				
Participants	49.2	21.1	39.9	2,487.5
Not Available	50.6	21.1	38.3	2,354.4
School Breakfast Only:				
Participants	52.8	24.7	32.9	4,915.0
Not Available	49.3	21.2	39.6	2,419.4
Special Milk Program Only:				
Participants	49.1	21.2	39.7	2,538.2
Not Available	50.1	21.1	38.9	2,396.0
All Children	49.0	21.4	39.3	2,448.7

a. Energy value of food consumed was based on proximate composition calculations. Nutrient intake reported in Appendix Table C-2 was converted to energy values based on 5.65 kcal. per gram of protein, 4.1 per gram of carbohydrate, and 9.45 kilocalories per gram of fat. See: Helen Andrews Gutherie, Nutrition, Third Edition (C. V. Mosby Company, 1975).

b. Figures may not add to 100 percent because of statistical error in the mean consumption variables and estimated caloric intake.

is appropriate (that is, the proportion of complex carbohydrates and naturally occurring sugars).

In the case of children who participated in the school breakfast program, however, a tendency toward lower fat and higher carbohydrate consumption may be seen. The diets of those who participated only in that program showed 32.9 percent of their caloric intake to be made up of fat. The comparable figure for those who participated only in the school lunch and milk programs was approximately 40 percent. While criticisms have been made of the fat content of the child nutrition programs, HANES data do not support the conclusion that children who participate in the programs have higher fat intake than children who do not.

The biochemical analysis (discussed below) also shows no major difference in the mean level of serum cholesterol between participants and nonparticipants in the milk, breakfast, or lunch programs. A slight increase in serum cholesterol was seen, however, for low-income children participating in these programs relative to low-income nonparticipants.

Sodium intake exceeded the recommended goals for all children regardless of program participation. Participants in the programs, however, exceeded nonparticipants especially in the milk and breakfast programs. School breakfast participants reported an average consumption of 4,915 mg. of sodium (over twice the stated goal), while nonparticipants consumed 2,419 mg. Milk program participants also consumed 2,523 mg. of sodium, approximately 100 mg. more than nonparticipants.

Biochemical Analyses. Nutritional status may also be analyzed in terms of the nutrients found in the body.[21] Low blood levels of a nutrient may reflect a number of factors: low dietary intake, defective absorption by the body, or increased utilization, destruction, or excretion. For this reason, actual changes brought about by diet are often masked in the biochemical data.

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[21] The seven major biochemical tests conducted relevant to the school-age population were limited to hematological determinations including hemoglobin, hematocrit, and red and white cell counts. Specimens of serum or plasma (the colorless fluid of blood from which the cells have been removed) were analyzed for determination of serum iron, serum protein, serum cholesterol, total iron binding capacity, and serum albumin.

Appendix B reviews biochemical test findings for the school-age population, using the same categories as for nutrition program participation.[22] The various test results discussed include: hemoglobin, hematocrit, serum protein, serum albumin, and serum cholesterol. In general, the biochemical analyses suggest the following:

(1) Breakfast and milk program participants show a slightly higher concentration of hemoglobin (indicating less iron deficiency anemia) as a result of the nutrient patterns found in the feeding programs.

(2) Breakfast and milk program participants also appear to have fewer low hematocrit counts, but this could be related to other factors.

(3) Children who participate only in the school breakfast program show fewer instances of low serum protein.

(4) No abnormal levels of serum albumin were found.

(5) There is no evidence that the nutrition programs have any effect on the level of serum cholesterol in children.

OVERVIEW OF NUTRITIONAL EVALUATION

Significant analytical problems exist with any attempt to assess the nutritional impact of participating in the federal child nutrition programs. The greater emphasis now given to nutritional improvement through these programs will, however, require improvements in the measurement of nutritional status.

Despite the limitations of measurement, the studies and evaluations discussed in this chapter suggest the following:

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[22] The laboratory work done to perform the biochemical tests for HANES was completed by the Center for Disease Control. Over the whole sample, more tests were performed than are reported here; for the school-age population a limited number of blood tests were performed.

- Iron-deficiency anemia appears to be the primary child nutrition problem today, and some evidence exists to suggest that special supplemental food programs such as the WIC program may provide greater benefits than the institutionalized feeding programs in meeting this nutritional problem;

- Children who participate in the lunch program do not necessarily show any less prevalence of iron-deficiency anemia than children who do not participate in any federal feeding program, as measured both by dietary iron intake and by hemoglobin concentrations;

- In general, income was not found to be a statistically significant factor in explaining individual nutrient intakes as a proportion of recommended dietary allowances;

- Children who participated in only a school breakfast or milk program showed a positive and slightly significant increase in a composite nutritional index used to measure the programs' effectiveness;

- The overall nutritional status of school-lunch-only participants did not appear to be any better than that of a control group, but lower-income children benefited more than higher-income children from the lunch program; and

- The nutritional impact of multiprogram participation appears mixed. High-income multiple-program participants have no better diets than high-income single-program participants; but for low-income school-age children, the combination of a breakfast and a lunch program appears to provide the highest nutritional benefits.

CHAPTER VI. PROGRAMS AND BUDGET OPTIONS FOR THE CHILD NUTRITION PROGRAMS

Federal outlays for child nutrition will grow from about $4.9 billion in fiscal year 1981 to nearly $7.1 billion by 1985, if current policies are continued. In real terms--that is, correcting for projected price inflation--federal child nutrition expenditures will grow by approximately 2 percent per year during this period.

But whether or not current program and funding policies are continued is a matter of choice. The rapid growth of the nutrition programs during the 1970s has triggered a number of proposals for policy reform. Critics point to the differences in the programs' target populations, nutritional effectiveness, and administrative structures, together with their growing costs and administrative difficulties.

Proposals for reform may be divided into two groups: proposals for comprehensive change in the federal approach to nutrition, and proposals for changes in specific components of the programs. This chapter reviews both the comprehensive and the incremental reform proposals.

COMPREHENSIVE PROGRAM REFORM OPTIONS

Major comprehensive reform proposals would both directly and indirectly affect the nutritional status of children. Some of these proposals would increae federal expenditures, some would leave unchanged current spending levels, and others would significantly reduce program costs. Those discussed here include:

- Correcting market imperfections that raise the prices of nutritious foods above competitive levels and discourage their consumption by low-income families,
- Increasing welfare benefits and other direct income transfers,
- Collapsing the multitude of existing programs into block grants that would allow state and local administration to be more effective,

- Making free school lunches universally available,
- Considering total food benefits available to a family from multiple-program participants when determining benefits in one program,
- Eliminating federal subsidies to non-needy children, and
- Improving school menus and fortifying foods consumed by children.

Market Imperfections

Some observers have suggested that malnutrition could be lessened by policies that would lower the prices of nutritious foods relative to other prices.[1] This approach may place producer and consumer interests in conflict because marketing orders and import restrictions have long been used to restrict competition among producers.

The overall effect of current agricultural marketing policies on the nutritional status of children is hard to quantify, especially since the effect of the policies on total consumption is not well established. In some instances, even if the abandonment of certain marketing policies resulted in lower prices, this in turn might cause a reduction in supplies brought to the market. Nevertheless, federal marketing programs that are intended to aid producers should be examined for their indirect effects on nutrition. In some instances, federal policies seem to counteract each other: for example, efforts to maintain high dairy product prices on the one hand, and the expansion of WIC-type programs on the other.

Dairy products--the primary source of protein, calcium, phosphorus, and potassium--are largely controlled by federal marketing orders designed to prevent or limit interregional flows of milk that would reduce local milk producer prices.[2] Because these orders result in higher producer prices, and because lower income groups are particularly responsive to changes in milk product prices, they reduce the consumption of milk products by lower-income children. One estimate suggests that calcium intake could increase by 25 percent under an unrestricted marketing system.[3]

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[1] Peter Timmer, "The Equitable Distribution of Domestic Food Aid," Agricultural-Food Policy Review, U.S. Department of Agriculture (September 1978).

[2] Federal marketing orders are authorized by the Agricultural Marketing Agreement Act of 1937, as amended. Marketing orders limit the quantity of a commodity that a producer can sell.

School-age children analyzed in the previous chapter did not show a lack of the nutrients normally provided through dairy products. However, for participants in the WIC program--primarily lower-income children and mothers--these high-protein dairy products make up between 50 and 75 percent of the package of foods they are provided. Lowering domestic prices for dairy commodities might, therefore, encourage their consumption by this high-risk group.

Fresh fruits and vegetables are also controlled through marketing orders, reinforced by the antitrust exemption of farm cooperatives. Import restrictions, especially on produce from Mexico, may further raise prices and reduce the quantities consumed. For example, an analysis of the federal marketing order governing the sale of fresh navel oranges in 1974 found that the marketing order system limited quantities available to consumers even though crops were increasing, and caused higher retail prices.[4] Federal regulation of the trucking industry

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3. The price elasticity of milk for low-income U. S. households has been estimated at close to -2.0. See Ann Rosenberger, The Nutritional Impact of U.S. Milk Policies, M. S. Thesis, Cornell University (1977). The direct price elasticity of butter and margarine was estimated at nearly -2.8 for a low-income sample in Cali, Colombia. See Pier Pinstrup-Anderson, and others, "The Impact of Increasing Food Supply on Human Nutrition. . .," American Journal of Agricultural Economics, vol. 58, no. 2 (May 1976).

4. Glenn Nelson and Tom H. Robinson, "Retail and Wholesale Demand and Marketing Order Policy for Fresh Navel Oranges," American Journal of Agricultural Economics, vol. 60, no. 3 (August 1978).

may result in increased shipping costs for some agricultural products and therefore higher consumer prices.[5]

Direct Income Transfers

One comprehensive reform strategy would simply replace all categorical child nutrition programs with money payments to families with children.[6] Major welfare reform proposals now being considered in the Congress could increase federal payments to low-income families with children by approximately $3.9 billion in fiscal year 1982.[7] These proposals are not aimed at reducing federal child nutrition expenditures. They might do so, however, to the extent that families receiving increased cash assistance would be moved into higher income groups and thus would qualify for lower child nutrition subsidies.

The expansion of federal aid through two major programs--Aid to Families with Dependent Children (AFDC) and the food stamp program--has, in the past decade, provided families with children the opportunity to increase their purchases of food. This has doubtless brought major improvements in the diets of low-income children. But a continued expansion of these income transfer programs may not overcome the nutritional problems outlined in the previous chapter. Money payments to households do not guarantee that the households will purchase nutritious food, or even any food at all. In earlier years, when the basic nutritional problem was one of getting enough to eat, money payments served the purpose. But when, as today, the nutritional problem is primarily one of correcting specific nutrient deficiencies, increasing direct income transfers may not be effective.

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[5] A bill that would substantially ease entry into the trucking market was introduced by the Administration and recently passed by the Senate (S. 2245). Similar legislation was introduced in 1979. The effect of such legislation on consumers could be to reduce the price level by between 0.3 and 0.45 percentage points below what it would have been in 1985. See "Inflation Impact Statement, Motor Carrier Reform Act of 1980," Congressional Budget Office (March 1980).

[6] A nutritional evaluation of participants in the North Carolina-Iowa Income Maintenance Experiments found an increase in the intake of six deficient nutrients for households receiving cash payments. John Palmer and Joseph Pechman, Welfare in Rural Areas, Brookings Studies in Social Experimentation (1978).

[7] Congressional Budget Office, "An Analysis of the Administration's Social Welfare Reform Amendments of 1979," Staff Draft Analysis (October 1979).

An analysis of consumption patterns at different income levels indicates that children's consumption of specific nutrients is not very responsive to increased family income. In the case of some nutrients--for example, protein and vitamin A--increased family income may even be associated with lower intake. Table 15 summarizes the changes in children's nutrient intake that might be expected to result from increases in family income. The nutrient income elasticities measure the percentage changes in the nutrient adequacy ratios given a 1 percent change in income. Most of them, it will be seen, are less than 0.05 of 1 percent.

Because of the extremely low responsiveness of nutritional intake to income changes, the cost of increasing a middle-income child's mean nutritional adequacy ratio (MAR) by one percentage point through direct money payments to the family would be over $2,500 annually. The cost would be lower for the lower-income groups (between $590 and $1,680 annually) and higher for the higher-income groups (nearly $3,903 annually--see Table 16).

Feeding programs offer a much less expensive way of achieving nutritional goals for all income groups. Participation in the school breakfast program costs between $3 and $27 annually for each one-percentage-point increase in a participant's MAR. For all income groups, breakfast program participation is significantly more nutritionally cost-effective than direct income transfers would be. Participation in the lunch program costs between $65 and $137 annually for each one-percentage-point increase in a participant's MAR. For lower-income children, participation in the school lunch program is also more cost-effective than direct income transfers would be; similarly, participation in the milk program is significantly more nutritionally cost-effective than direct income transfers would be. Participation in the milk program costs between $15 and $135 annually for each one-percentage-point increase in a participant's MAR.

Consolidated Block Grant Proposals

Another comprehensive approach to modifying the federal child nutrition programs is through consolidated block grants. The consolidation approach emphasizes the administrative simplification

TABLE 15. ESTIMATED NUTRIENT ADEQUACY RATIO INCOME ELASTICITIES FOR CHILDREN AGE 6 TO 21 BY FAMILY POVERTY STATUS (In percent, F-values in parentheses)[a]

Nutrient	Total Population	Family Poverty Status Below 125% Poverty	 125% to 195% Poverty	 Greater than 195% Poverty
Energy (calories)	-0.030 (2.53)	-0.023	-0.052 (0.035)	-0.024
Protein	-0.038 (4.48)[b]	-0.092	-0.013 (2.27)[c]	-0.006
Calcium	0.032 (1.29)	-0.042	0.053 (2.28)	0.109
Phosphorus	0.007 (0.09)	-0.035	0.008 (1.27)	0.044
Vitamim A	-0.098 (3.73)[b]	-0.009	-0.416 (0.75)	-0.072
Thiamin	0.005 (0.04)	-0.240	0.110 (1.66)	0.091
Riboflavin	0.015 (0.55)	0.057	-0.114 (1.82)	0.079
Niacin	-0.005 (0.06)	-0.038	-0.030 (1.12)	-0.056
Vitamin C	0.058 (1.08)	0.026	0.136 (0.78)	0.171
Mean for All Nutrients	0.017 (8.17)[b]	0.010 (2.40)	0.062 (0.79)	0.018 (3.36)[c]

SOURCE: Health and Nutrition Examination Survey, 1971-1974.

a. Nutrient elasticities were estimated based on a semi-log function, and estimates of elasticities were calculated at mean nutrient levels for the different income groups.

b. Significant at 5 percent level.

c. Significant at 10 percent level.

TABLE 16. NUTRITIONAL COST EFFECTIVENESS OF DIRECT INCOME TRANSFERS COMPARED WITH THAT OF THREE CHILD NUTRITION FEEDING PROGRAMS BY VARIOUS INCOME GROUPS (in 1980 dollars)

		Income Groups		
Type of Program	All Income Groups	Below 125% Poverty	125% to 195% Poverty	Greater than 195% Poverty
Direct Income Transfers				
Average Family Income	$19,867	$7,800	$16,192	$28,724
MAR Income Elasticity[a]	0.017[b]	0.010	0.062	0.018[b]
Change in MAR with 10 Percent Income Transfer	0.150	0.080	0.530	0.160
Cost per MAR Change per Person[c]	$ 2,546	$1,681	$ 545	$ 3,903
Institutional Feeding				
Breakfast Program:				
Change in Participant's MAR[d]	--	3.1	5.6	7.9
Annual Federal Subsidy[e]	--	$ 85	$ 70	$ 25
Federal Cost per MAR Change	--	$ 27	$ 13	$ 3
Lunch Program:				
Change in Participant's MAR[b]	--	2.2	1.3	0.9
Annual Federal Subsidy[e]	--	$196	$178	$ 59
Federal Cost per MAR Change	--	$ 89	$137	$ 65
Milk Program:				
Change in Participant's MAR[b]	--	0.2	0.9	0.3
Annual Federal Subsidy[e]	--	$ 27	$ 14	$ 14
Federal Cost per MAR Change	--	$135	$ 15	$ 46

a. Source: Table 15.

b. Statistically significant results.

c. The estimated change in the child's MAR was based on a change in the family's total income; therefore, the cost per child of changing the MAR was calculated by dividing through by average family size for the various income groups: all income groups, 5.2; less than 125%, 5.8; 125%-195%, 5.6; greater than 195%, 4.6.

d. Source: Table 13.

e. Fiscal year 1980 federal subsidies per meal times an assumed 180 school days of participation.

and greater flexibility of determining nutritional needs by state and local administrators. Its proponents argue that federal categorical programs have become burdensome to administer and are no longer appropriate to the broad range of economic and social conditions in different areas.

The first major attempt to replace ten child nutrition programs with one lump-sum grant payment to the states was proposed by the Nixon Administration in 1975. The Child Food Assistance bill would have apportioned funds through a formula that multiplied the number of poor children (between the ages of 1 and 17) in a state by the cost of providing meals meeting one-third of the recommended dietary allowance for children for 225 days (the estimated average number of days in a year, less holidays and a school absentee factor). In fiscal year 1980, this proposal would have granted about $3.1 billion ($310 per poor child) to states, reducing federal expenditures by approximately $1.3 billion from the present level. The bill was designed to address poverty-related hunger and malnutrition, and therefore restricted federal assistance to poor children.

In almost every year since 1975, a variation of the block grant approach has been submitted in the Congress. The most recent proposal is that of Senators Bellmon and Domenici, entitled the Food and Nutrition Program Optional Consolidation and Reorganization Act of 1979 (S. 605). States choosing to consolidate existing categorical programs would receive a federal grant equal to the federal government's contribution to the programs in the preceding fiscal year, adjusted for changes in food prices. For an interim period of no more than two years, states would also receive an annual consolidation planning grant to be used for the purpose of developing a comprehensive state nutrition plan. A state could choose not to consolidate the categorical programs after the planning phase. Once a state elected to consolidate the categorical programs, the basic consolidation grant would be supplemented with federal matching monies up to a maximum of 10 percent of the basic grant.[8]

The federal costs of S. 605 would be a function of the number of states choosing to consolidate, and also of the distribution of funds under the existing categorical programs within these states. Costs in the initial years would reflect increased federal expenditures for planning grants. Further, because the proposal indexes a state's base categorical expenditures for determining future grants, changes in the participation in current programs could either reduce or increase federal costs dramatically. Under S. 605 nearly 50 percent of the funds (used to establish the base consolidation grant in a state) are those provided through the national school lunch program. Declining school enrollment, and therefore decreasing school lunch participation--coupled with the indexed base in S. 605--would mean increased federal costs compared to what would have occurred under the existing program.

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[8] The proposal specifies that federal-state revenue sharing funds could be used by the state for matching purposes.

Some states might not choose to consolidate their nutrition programs. The requirement that administrative control be placed in one state agency could weigh against it. In some states, administrative responsibility for the various nutrition programs is distributed among several health, education, and welfare agencies. Integrating nutrition programs under a single administering agency could result in improved nutrition planning within a state--something that has not always been achieved at the federal level.

If all states chose to consolidate, federal costs would increase by approximately $500 million in fiscal year 1983 over projected spending levels for the current program. Fiscal year 1983 would be the earliest that consolidation grants could be provided to states after an initial two-year planning phase. The planning grants would cost the federal government approximately $100 million annually during the interim years if all states chose to consolidate.

The potential impact of a block grant system on the nutritional status of children within a state would depend, in part, on the state's ability to conduct a meaningful assessment of nutritional needs and to formulate and implement programs addressing those needs. In essence, this is what is required at the federal level. As the previous chapter indicates, federal assessment of nutritional needs has not always resulted in effective programs; whether the states would do better is an unanswered question.

A Universal Free Lunch

The proposal has been made to extend the lunch program to all children, free of charge. Proponents of this option view a free lunch program as consistent with universal free education, and as a means of avoiding the stigma of separate treatment for lower-income children in school lunchrooms. It would increase participation by 10 to 12 million children, primarily from higher-income families.[9]

Increased participation would raise federal costs to nearly $7.1 billion in fiscal year 1980, or close to $4.3 billion over what they would be under the current program.

The impact of such a free lunch program on the nutritional status of children is questionable. As indicated in the previous chapter, there is little evidence that school lunch participation is beneficial for higher-income groups.

The proposal would benefit state governments and local school authorities by reducing their contribution to the program an estimated $1.3 billion in 1980. Present participants would save approximately $1.8 billion in out-of-pocket lunch payments, but this might be offset by higher federal taxes instituted to fund the $4.3 billion cost increase.

Overall, the proposal would mean a major shift in the funding structure of child nutrition programs. Traditionally, elementary and secondary education has been a local responsibility. Complete federalization of the child nutrition programs--particularly in institutional settings that have hitherto been locally financed and administered--could result in administrative imbalances within school systems.

Adjustment of Food Stamp Benefits for Receipt of Child Nutrition Benefits

One comprehensive reform proposal attempts to reduce federal expenditures on nutrition programs by broadly defining school lunch benefits in the definition of nutritional support provided a family also receiving food stamps. This type of proposal would reduce food stamp benefits for multiple nutrition program participants.

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[9] Approximately 60 to 65 percent of the eligible school population now participates in the school lunch program. Participation is highest for the lowest-income groups who currently receive free meals (82 percent for children from families with incomes below 125 percent of poverty), and lowest for the highest-income group (56 percent for children from families with incomes in excess of 195 percent of poverty). These participation rates are based on the HANES data used elsewhere in this report.

The food stamp guarantee is based on the assumption that all family members eat three daily meals at home. The per meal, per person food stamp guarantee is projected to be about 60 cents (based on a four-person household guarantee) beginning in July 1980. The federal free school lunch subsidy is based on the premise that it provides support to meet one-third of the child's recommended dietary allowance. Beginning in July, this subsidy is projected to reach approximately $1.20 per meal for children from low-income families. This is higher than the food stamp per meal subsidy, reflecting the much higher labor costs involved in producing the school lunch.

This reform proposal is encompassed in a bill--S. 2360--recently introduced by Senator Helms. The bill would amend the Food Stamp Act in a way that would reduce food stamp benefits for multiple-benefit households. The amount of the reduction would be approximately 53 cents per school lunch served, multiplied by an average school attendance factor adjusted for absentee rates. With an estimated 6.8 million children receiving free or reduced-price meal subsidies in food-stamp households, this bill would reduce federal expenditures by about $630 million in fiscal year 1981.

Proponents of this budget reduction proposal argue that the federal government is subsidizing an extra meal in multiple-benefit families. Such proposals would therefore better target limited federal nutrition dollars. It is further argued that if food stamps were considered as cash and not nutrition supplements, then child nutrition benefits would be reduced automatically. Multiple-benefit households would be moved into higher income groups, and therefore eligibility for federal child nutrition subsidies would be reduced.

Opponents of the strategy suggest that overlapping nutrition benefits may be desirable, especially for vulnerable low-income children. If the food stamp guarantees are considered inadequate, then providing an additional nutritional subsidy through the school lunch program is beneficial. The effect such a proposal would have on the health and nutritional status of low-income school children is unclear; however, nutrition benefits would be reduced for the very income group evidence suggests is most benefited by the program.

Proponents argue that, unlike previous proposals along these lines, the administrative difficulties have been minimized. Schools would be unaffected by the proposal; they would continue to receive the same federal subsidies as under the current program. Food-stamp caseworkers, however, would be required to collect additional household information at the time of certification regarding the presence of school-age children and their school of attendance. Food-stamp caseworkers would be required to recalculate individual household allotments using a generalized formula. The length of the food-stamp certification period and its relationship to the school year would be determining factors in how often a caseworker would be required to reestimate food-stamp allotments.

Elimination of Subsidies for Non-Needy Children

An alternative that could achieve federal savings on a scale similar to the proposal discussed above would be the elimination of federal subsidies to all non-needy children. Eliminating federal nutrition subsidies for children from families with incomes above 195 percent of poverty could result in federal savings totaling at least $820 million in fiscal year 1981, equal to about 17 percent of all federal child nutrition benefits.

As discussed in the previous chapters, federal subsidies to non-needy children grew out of the historical relationship between the agricultural goals of the program and the later attempt to maintain (and increase) program participation among all income groups. It was felt that through program participation all children's diets would be improved, and, therefore, that federal subsidies to higher-income groups were justified on the basis of these nutritional objectives.

The previous chapter has raised concern as to whether children from higher-income families really benefit from program participation. To the extent that this is true, federal subsidies to these families become simple income transfers. If the Congress wished to alter this situation, it might either: (1) eliminate the income transfers, or (2) initiate policies that would result in the transfer actually improving nutritional status for these groups—for example, a better quality of subsidized meals.

Eliminating all subsidies to nearly 16 million non-needy children, however, could have indirect effects on needy children. If institutions chose to drop out of the programs because of a drop in non-needy participation, and because per unit costs of operating a program increased, then needy children within the institutions would be adversely affected. To offset the increased per unit cost, and help maintain program sponsors, federal subsidies for the needy children could be increased.

Opponents of this proposal argue that the programs would be translated into welfare programs and thereby stigmatize children who participate in them. As the previous chapter suggests, however, the current program may be serving as a welfare program for the non-needy.

Altered Menus and Food Fortification

Altered Menus. The paucity of quantifiable benefits from some child feeding programs may lie in their implementation. Administrative complications, improperly prepared foods, unappetizing or unappealing foods, and poor eating environments may compromise the programs' potential nutritional benefits.

Concern over the apparent increase in food waste prompted the Congress to enact legislation in 1975 that allowed for increased menu flexibility. Current law now permits high school and junior high school students participating in the school lunch program to select three of the five food items contained within the standard meal pattern. This menu choice system continues to receive the full federal subsidy despite the fact that its nutritional quality may be lower.

Alternatives to the menu choice approach for reducing program waste have been proposed by a number of school food service directors. These alternatives include low-fat, low-salt, and low-sugar versions of fast foods; and a fast-food style of service instead of the traditional cafeteria line. Such experiments in Las Vegas, New York City, and Minneapolis have capitalized on the popularity of fast-food food service concepts to improve participation and reduce plate waste. The Fulton County Food Service Program in Atlanta, Georgia, offers a natural foods lunch (Nutra Lunch) as an alternative to the traditional school lunches; menus feature low-cholesterol foods and whole-grained breads, with no artificial coloring or additives or preservatives. The Nutra Lunch does not qualify for federal reimbursement.

The Administration has also promulgated regulations designed to improve the components of the school lunch and make it more appealing.[10]

Food Fortification. A much broader approach is that of food fortification—adding nutrients to the foods consumed by children. Many diseases caused by nutrient deficiencies, such as beriberi, pellagra, and ariboflavinosis, have all but been eradicated in the United States through fortification of bread with iron, thiamine, niacin, and riboflavin. Fortification differs from enrichment: enrichment of foods normally restores vitamins, minerals, and protein lost during processing; fortification goes beyond enrichment and adds still other nutrients. Today, 34 states require fortification by law.[11]

Specific nutrients lacking in children's diets could be added at minimal cost through targeted fortification schemes. Fortification of milk with vitamins A and D costs less than 0.04 cents per quart; fortification of processed cereal grain with vitamins and minerals costs an average of 0.02 to 0.03 cents per pound. The cost for vitamin A is less than 15 cents a year, for vitamin C less than 23 cents, and for niacin less than 6 cents (see Table 17). The ingredients required to provide 100 percent of a child's RDA for all known vitamins cost less than $3.00 a year.

If food fortification for children is to succeed, a broadly consumed food must be used as the nutrient carrier. In practice, all foodstuffs would have to be fortified in order to reach preschool children and children not participating in a school lunch program. Fortification might then raise the cost of the final product for all consumers. Unless it was made mandatory, or the cost was absorbed by the government, low-income consumers might purchase cheaper unfortified products—thus defeating the purpose of the program.

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[10] Federal Register, vol. 43, no. 163, "National School Lunch Program, Nutritional Requirements" (August 22, 1978); see also the Federal Register for August 17, 1979, and May 16, 1980.

[11] Alan Berg, The Nutrition Factor (The Brookings Institution, 1974).

TABLE 17. COST PER YEAR OF SUPPLYING A 6-YEAR-OLD CHILD WITH 100 PERCENT RDA FOR SPECIFIC VITAMINS (In cents)

Nutrient	Recommended Dietary Allowance (RDA)[a]	Weight	Price per Kg Fortifier[b] (1979)	Total Annual Ingredient Cost of Fortification
Vitamin A	5,000 I.U.	20 mg	21.00	15.33
Vitamin C	60 mg	60 mg	10.40	22.78
Vitamin D_2	400 I.U.	0.8 mg	44.00	1.28
Thiamine (B_1)	1.5 mg	1.5 mg	36.00	1.97
Riboflavin (B_2)	1.7 mg	1.7 mg	56.00	3.47
Vitamin B_6	2.0 mg	2.0 mg	47.00	4.12
Niacin	20.0 mg	20.0 mg	7.10	5.18
Folic Acid	0.4 mg	0.4 mg	135.00	1.97

a. National Academy of Sciences, Recommended Dietary Allowances, Eighth Edition (1974).

b. Roche Chemical Division, Hoffman-LaRoche Inc., "The Cost of Fortifying Foods with Vitamins," RCD 2920/1179 (November 1979).

Finally, fortification of foods implicitly assumes that children are unwilling to alter their consumption habits in favor of unfortified (natural) foods that would provide the required nutrients, and that food service personnel are unable to guide them in that direction. Substitutes such as fortified fast foods and specialty foods (for example, the Prestige Donuts product named "Super Donut," fortified with 30 percent of the RDA of vitamins and protein) have been criticized as promoting poor eating habits in the long term. A major alternative to food fortification schemes is nutrition education, discussed later in this chapter.

INCREMENTAL PROGRAM REFORM OPTIONS

The most common type of legislative option discussed today is the reform of individual program components. These individual program modifications could be done in ways that would not be inconsistent with a unified approach to federal child nutrition policymaking, but to do so would require careful planning.[12]

This concluding section discusses six major incremental reform options that the Congress is likely to consider:

- Modified subsidy and income eligibility standards,
- Cash-out of federal commodities,
- Expansion of the WIC program,
- Expansion of the school breakfast program,
- Limiting of the special milk program, and
- Expanansion of the nutrition education programs.

The variations to these and other incremental reform approaches are infinite.

Modified Subsidies and Income Eligibility Standards

In its 1980 and 1981 budgets, the Administration proposed changes in the income eligibility standards for various federal child nutrition subsidies, and a five-cent reduction in the federal subsidy for paying students. These proposals were expected to result in federal savings of approximately $350 million in fiscal years 1980 and 1981.

Income Eligibility Standards. The Administration would reduce the current family income limits that qualify children to receive free or reduced-price meals. The proposal would replace an existing hardship deduction with a flat annual standard deduction (comparable to the standard deduction used in the food stamp program), and lower the net income eligibility for free meals to the poverty line.[13] Eligibility for reduced-price meals would be lowered to 175 percent of the poverty line. Gross income eligibility for a family of four would then be approximately 111 percent of poverty for free lunches and 186 percent of poverty for reduced-price lunches.[14]

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[12] A procedural consolidation proposal that does not change the basic programs' structure but consolidates legislative language and groups the various child nutrition programs under conceptually consistent categories was introduced by Senator McGovern in 1979 (S. 1898, National Child Nutrition Act). This proposal maintains the categorical structure and separate program authorizations. As such, the proposal represents an instrument for the continuation of incremental reform into the 1980s.

This proposal would reduce benefits for some families (see Figure 4). The maximum income for a family of four eligible for free lunches would be lowered from $10,060 to $8,950. For four-person families with incomes between $8,950 and $10,060, benefits would be reduced $28, or 13 percent. At present a family of four can qualify for reduced-price meals with an income between $10,060 and $15,700, but the reform proposal would lower the income range to $8,950-$15,000. For four-person families with incomes between $15,000 and $15,700, federal benefits would be reduced from $200 to $55, or by nearly 73 percent. Families with incomes above $15,700 would have a $10 reduction in annual subsidy per child enrolled in school.

The families most adversely affected would be those with gross incomes between 186 and 195 percent of poverty. But participation rates in this income range are quite low, and the absolute reduction in federal benefits per child as a percent of family income would be only about 1 percent. A second group that would be strongly affected is the group in the income range from 111 to 125 percent of poverty, whose benefits would be reduced 18.6 percent. Again, however, the loss in benefits would be a very small proportion of family income.

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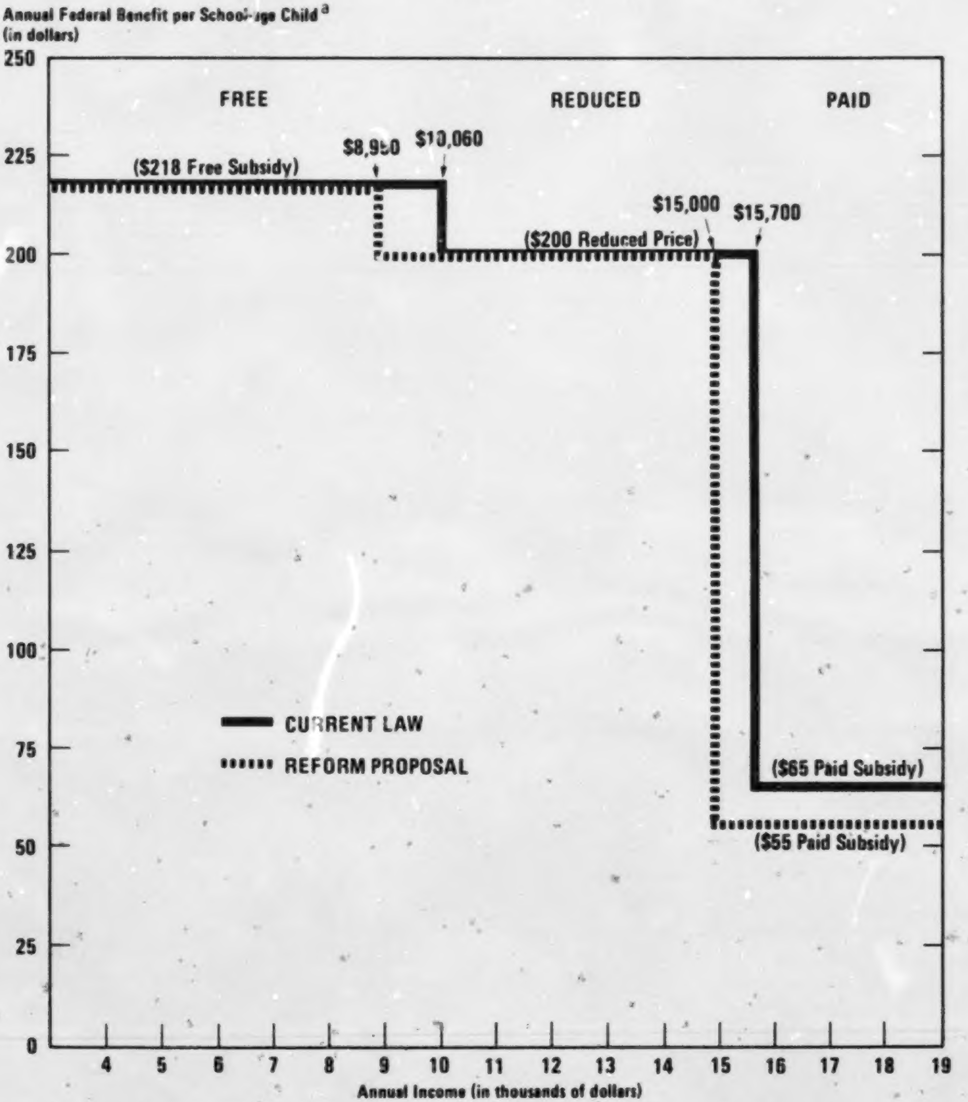
[13] In current practice, households may exclude "special hardship expenses" that could not have been anticipated or controlled by the household: (1) unusually high medical expenses, (2) shelter costs in excess of 30 percent of income, (3) special education expenses due to the mental or physical condition of the child, and (4) disaster or casualty losses.

[14] Eligibility for reduced-price lunches was initially established at 150 percent of poverty when the provision was adopted in 1972--Public Law 92-433. In 1974, the eligibility level was raised to 175 percent of poverty--Public Law 93-326--and in 1975 to its current level of 195 percent of poverty--Public Law 94-105.

Figure 4.

Impact of Administration's Child Nutrition Reform Proposal on Families of Four at Different Incomes, Fiscal Year 1981



SOURCE: Congressional Budget Office

[a] Estimated subsidies for school lunch program in fiscal year 1981 include $1.04 free lunch subsidy, $0.94 reduced-price lunch subsidy, and $0.19 paid lunch subsidy. Commodity subsidies for all types of meals average about $0.17 per meal. Participation for 180 days is assumed.

Impact on the Free Category. The proposal would remove approximately 1.6 million children from eligibility for free meals, a reduction of 14.6 percent from the current 11.0 million (see Table 18). This would affect approximately 1.5 million of the present participants, and reduce costs by $250-$350 million. The savings, however, would be offset by increased reduced-price subsidies.

Impact on the Reduced-Price Category. The new eligibility limits would reduce the number of children eligible for reduced-price meals by approximately 1.2 million, or 15.1 percent. Offsetting this, however, is the greater number of children made ineligible for free meals, so that there would be a net increase in the reduced-price category of approximately 385,000 (4.8 percent), and an increase in federal costs of about $75 million.

Impact on the Paying Category. Two factors would affect the size of the paying category: (1) increases in the number of children as a result of eligibility changes in the reduced-price category, and (2) the reduced level of subsidy--from 19 to 14 cents. These would interact to change the distribution of program benefits and recipients.

The paying category would increase by approximately 1.2 million children, raising to 31.4 million the total number of children eligible for the minimum federal benefit. Not all of them would actually participate.[15] The children moved into the paying category would have their meal charge increased from approximately 10 cents to over 60 cents. With so large an increase, the drop-out rate might be significant. Altogether, the small numbers of participants, the high potential drop-out rate, and the low federal subsidy would mean a rather insignificant increase in federal costs.

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[15] Because these children would be in the higher-income range of the current reduced-price category, their participation rate may not be the same as the average participation rate for the entire reduced-price category. The HANES data suggest that the participation rate in the income range that would be made ineligible for reduced-price meals is about one-third of that for the entire reduced-price range (25.8 versus 75.8 percent). Therefore, the proportion of current reduced-price children moved into the paying category would be about 5 percent (the 15.1 percent reduction times one-third).

TABLE 18. ELIGIBILITY OF SCHOOL CHILDREN FOR NUTRITION PROGRAMS UNDER CURRENT LAW AND UNDER THE ADMINISTRATION'S PROPOSAL, BY REGION, MARCH 1978 (In thousands)

Eligibility Category	U.S. Total	Mountain and Plains	Mid-Atlantic	Mid-west	New England	South-east	South-west	West
Free Eligibility								
Current Law	10,991	838	2,443	1,820	469	2,603	1,436	1,382
Administration's Proposal	9,388	699	2,114	1,555	420	2,164	1,262	1,173
Change	1,603	139	329	265	49	439	174	209
Percent Change	-14.6	-16.6	-13.5	-14.6	-10.4	-16.9	-12.1	-15.1
Reduced-Price Eligibility								
Current Law	8,046	759	1,781	1,408	368	1,657	918	1,154
Administration's Proposal	8,431	774	1,856	1,457	378	1,831	961	1,173
Total Change	+385	15	75	49	10	174	43	19
From Prior Free	+1,603	139	329	265	49	439	174	209
Current Reduced	-1,218	-124	-254	-216	-39	-265	-131	-190
Percent Change								
Net	+4.8	+2.0	+4.2	+3.5	+2.7	+10.5	+4.7	+1.6
Current Reduced	-15.1	-16.3	-14.3	-15.3	-10.6	-16.0	-14.3	-16.5
Paid Eligibility								
Current Law	31,419	2,643	7,360	7,420	1,811	4,368	2,990	4,828
Administration's Proposal	32,637	2,767	7,614	7,636	1,850	4,633	3,121	5,018
Percent Change	+3.9	+4.7	+3.5	+2.9	+2.2	+6.1	+4.4	+3.9

Another important budget saving would result from a five-cent across-the-board reduction in the federal subsidy for the paying students, those from families with incomes above 195 percent under current law. The reduction would mean a direct saving of $120 million. In addition, because the paying children's lunch prices would probably increase by that amount, some reduction in participation could occur. Based on previous studies, this reduction could be between 3 and 6 percent of the currently participating population.[16] The reduction in participation could mean an additional federal saving of $20 to $40 million. It is not clear, however, that any long-run effect on participation would occur as a result of these increased student charges.

Other savings might result from the proposed changes in eligibility limits because they are also applied to other programs. In addition, since the summer food program defines needy service areas on the basis of the proportion of children eligible for free or reduced-price meals, and since eligibility for the women, infants, and children (WIC) program is defined on the basis of incomes up to the maximum reduced-price limits, child nutrition benefits would be generally retargeted on lower-income children.

Nutritional Impact. Modifications to the income eligibility limits, and reduced participation as a result of higher meal charges, could result in a slight decrease in program participation. In general, however, this decrease would have minimal impact on the nutritional status of children. As discussed in previous sections, the estimated impact of school lunch participation on the nutrition of children with family incomes above 125 percent of the poverty level is negligible. Reducing federal subsidies to these middle-income and higher-income children would increase the nutritional cost-effectiveness of the programs. A somewhat larger effect might occur if, in response to tighter eligibility standards and lower average subsidies, some schools dropped out of the feeding programs. Then needy children (for whom the nutritional benefits of the program are better documented) would suffer. It is not possible to estimate the extent to which this would actually occur.

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[16] Comprehensive Study of Child Nutrition Programs--July 1974, Senate Committee on Agriculture and Forestry, 93rd Congress (September 1974). Estimates of the participation response to price increases were based on studies conducted during the period 1971 to 1973. Because of relatively rapid increases in alternative food sources outside the school lunch cafeteria, since 1973, these estimated participation responses are probably overstated.

Cash-Out of Federal Commodity Donations

As child nutrition programs have moved away from their original function as a major outlet for surplus agricultural commodities, proposals have been made to eliminate donated commodities completely. Although donated commodities still make up approximately 21 percent of the total resources available to the various programs, they represent a very small share of producers' income (see Chapter V). Their discontinuance would have little noticeable impact on the agricultural economy, but it could substantially affect school feeding programs.

A recent USDA study of the cash-out of commodity distributions concluded that the eight school districts studied were able to reduce their food costs under a cash-in-lieu option by 6.5 percent (see Table 19).[17] The reduced food costs, however, were offset by increases in labor and other costs resulting in a small net increase (0.5 percent) in the cost of producing a lunch. No consistent differences in types, amounts, or quality of food used could be found between cash-in-lieu schools and commodity schools.

The USDA study concluded that state program administrative costs might decline by 30 percent under a cash-out option.[18] Direct federal costs would be reduced through the elimination of $40 million in commodity shipping costs and minor savings in personnel.

A parallel study (using the same schools studied by USDA) was conducted by Kansas State University (KSU) using slightly different methodologies. The KSU study found a greater reduction in food costs as a result of cash-out (12.5 percent). Unlike the USDA study, the KSU study also reported savings in labor and other costs so that an overall reduction of 7.3 percent was reported in the cost of producing a meal.

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[17] USDA, Food and Nutrition Service, A Study of Cash-in-Lieu of Commodities in School Food Service Programs (December 1979).

[18] This finding was specific to the state of Colorado, used as the control state in the study.

TABLE 19. COSTS PER TYPE A LUNCH EQUIVALENT FOR EIGHT PILOT SCHOOL DISTRICTS, IN COMMODITIES AND IN CASH-IN-LIEU, SCHOOL YEARS 1977-1978 AND 1978-1979 (Costs in cents)

Category/Study	Commodities 1977-78	Cash-in-Lieu[a] 1978-79	Change in Costs	
			Absolute	Percent
Food USDA[b]	46.11	43.09	-3.02	-6.5
KSU[c]	52.00	45.50	-6.50	-12.5
Labor USDA[b]	26.87	27.94	+1.07	+4.0
KSU[c]	37.70	37.43	-0.27	-0.7
Other USDA[b]	18.02	20.41	+2.39	+13.3
KSU[c]	9.70	9.19	-0.51	-5.3
Total USDA[b]	91.00	91.44	+0.44	+0.5
KSU[c]	99.40	92.13	-7.28	-7.3

SOURCE: USDA, Food and Nutrition Service, A Study of Cash-in-Lieu of Commodities in School Food Service Programs (December 1975), Table 2, p. 20; and Donald Erickson, Cost of School Lunches Using USDA Donated Commodities Versus Cash-in-Lieu of Commodities (Kansas State University, November 1979), Tables 1 and 2, p. 4.

a. The USDA and KSU data for food and labor costs collected in school year 1978-79 were adjusted to prices of school year 1977-78 in order to make direct comparisons. The USDA study did not make a similar adjustment in the school-year 1978-79 data for "other" costs; the KSU study did.

b. USDA data for school year 1977-78 are based on monthly data collected in October 1977; for school year 1978-79 the data are based on monthly data collected in October 1978.

c. KSU data are based on average annual data covering the entire school years 1977-78 and 1978-79.

Only limited inferences can be drawn from the studies' findings. Assuming that the schools studied were representative, food costs for preparing meals could decline nationally by between $136 and $292 million (1977-1978 dollars) under a cash-out option. Total cost changes could range from an increase of about $20 million (USDA) to a saving of $328 million (KSU). Because the USDA study was limited to two months, it probably underestimated the cost saving under the option.

The elimination of commodities in favor of cash payments would generate no significant savings to the federal government unless the mandated minimum commodity assistance per meal (used to establish the cash-in-lieu payment under current law) was reduced in line with the estimated decline in the cost of preparing a meal following cash payments. Failure to reduce the cash-in-lieu payment could give a windfall to school districts to the extent that a lunch could be prepared less expensively with cash. Smaller school districts would be likely to suffer under any proposal to cash out commodities.[19] Large school districts are able to make greater economies in purchasing, and so the cost per unit of food purchased with cash would be less than for smaller school districts. This might mean that smaller school districts would have to make do with less food, or else increase their meal charges to students.

To offset the potentially adverse effects on smaller school districts, optional cash-out is an alternative to a complete cash-out. This would, however, tend to establish a dual administration system.

Another alternative would be to provide schools with vouchers enabling them to purchase from local markets foods designated as surplus by the Secretary of Agriculture.[20] This proposal has recently been introduced by Representatives Ford and Goodling (H. R. 6841) and Senator Church (S. 2388). This proposal would continue to allow adminstrative flexibility in removing surplus agricultural commodities, but at the same time simplify the federal and state commodity distribution system. Federal savings from such a proposal could reach approximately $20 million in fiscal year 1982. Some of these savings might be offset if the schools' system failed to remove the same proportion of surplus and price-support commodities now removed under the current system and distributed to them.

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[19] A 1974 USDA study of 15 school districts found that smaller school districts could do better with donated commodities than with cash, while larger school districts could generally match USDA purchasing power.

[20] See "Improving Federal Food Procurement and Distributing Programs," a report to the National Frozen Food Association prepared by Schnittker Associates (November 26, 1979).

Expansion of the Special Supplemental Food Program (WIC)

The special supplemental food program for women, infants, and children (WIC) appears to be fairly successful in reducing nutritional deficiencies, especially various forms of anemia. The program has grown rapidly and, as pointed out in Chapter III, represents one of the likely areas for budgetary growth in the 1980s. The Administration's initial 1981 budget request called for continual growth so that the program could serve an average of 2.1 million persons per month in 1981, as compared with the current level of 1.9 million.

Unlike most of the other programs discussed in this chapter, WIC is not an entitlement program. The level of service and therefore of costs is subject to the normal appropriation process. If the program were made an entitlement, costs would be likely to increase and participation could eventually grow as high as between 6 and 8 million persons. Total costs in 1981 dollars might then reach $3.6 billion. Pressures for making the program an entitlement have been mounting in recent years.

A Medicaid-CHAP Merger. In considering the future of the WIC program, the Congress might want to consider its specific characteristics and the extent to which it duplicates other federal health programs directed to similar groups. For example, the Administration's 1981 budget request calls for extending Medicaid eligibility to low-income families with children, who are not currently eligible for Medicaid because there are two parents in the family or because a state's income standards for AFDC are very low.[21]

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[21] The Administration's proposed Child Health Assurance Program (CHAP) would extend eligibility for Medicaid to all children under 18 from families with incomes below the higher of the state AFDC income eligibility level or 55 percent of the federal poverty level. Children in families not receiving AFDC or Supplemental Security Income (SSI) benefits, and those in states where the income standard is lower than 55

(Continued)

Medicaid programs support primarily direct medical services and limited diagnostic and preventive health care services. If nutrition supplements (as provided in the WIC program) were made a reimbursable item in the Medicaid program, it is possible that the two programs could be merged. This would result in expanded coverage for the nutrition supplements as an entitlement program (Medicaid) but with reduced federal costs, since Medicaid is subject to a federal-state matching requirement. Benefits provided in the WIC program are entirely federally funded.[22]

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21. (Continued)
percent of poverty, would benefit from the expansion of eligibility. The proposal would also raise the average federal share of Medicaid expenditures on ambulatory care for children, with the actual share varying from state to state according to the fraction of Medicaid-eligible children who have received comprehensive medical examinations under the Early and Periodic Screening, Diagnosis, and Treatment Program (EPSDT). The proposal would also make all women meeting the income criteria proposed for children eligible for Medicaid during pregnancy and for two months after delivery.

22. Two bills have been debated recently that could serve as alternatives to the Administration's CHAP proposal: H.R. 4962 and S. 1204.

H.R. 4962. This House-passed bill resembles the Administration's proposal, but is more expansive. It uses a federal income standard of two-thirds of the poverty level instead of 55 percent. The standard for pregnant women is 80 percent of the poverty level instead of 55 percent. About 5.0 million children and 220,000 pregnant women would gain Medicaid eligibility under this proposal. Federal outlays would increase by $650 million in 1981 and by over $2 billion in 1985.

S. 1204. This Senate Finance Committee-reported bill is more limited than the Administration's proposal. Medicaid eligibility would be extended only to children under age 7 who are members of families with income below the state Medicaid income standard. Eligibility would not be extended to low-income pregnant women. About 1.3 million children would gain eligibility under this proposal. Federal outlays would increase by $300 million in 1981 and by $1 billion in 1985.

State Sharing of Costs. Since the WIC program is estimated to reduce Medicaid outlays,[23] expansion of the WIC program would result in indirect fiscal relief to state and local governments by reducing their share of Medicaid costs. An alternative to simply expanding WIC or merging it with Medicaid would be to require states to share in the cost of the program, at least to the extent that the expansion would otherwise reduce their costs. This would reduce federal costs by approximately $200 million in 1981. It is worth noting that the states currently fund 50 percent of the costs of the Department of Health and Human Services' Maternal and Child Health programs.

Expansion of the School Breakfast Program

Because the school breakfast program appears to be one of the more effective federal child nutrition programs, proposals have been made to expand it. About one-third of all schools now participate in the program, serving 3.4 million children or 24 percent of the participating schools' enrollment. Part of the program's current effectiveness, however, clearly is a result of its being targeted on low-income children, who as discussed previously, benefit the most from any feeding program.

Currently, five states mandate a school breakfast program in certain schools meeting specific criteria.[24] Requiring all states that administer a school lunch program to administer a school breakfast program has been proposed as a procedural mechanism. States could choose not to administer both the lunch and breakfast programs in which case schools could then petition the federal government to administer the program directly.

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[23] WIC is estimated to reduce 1980 federal outlays by $260 million by lowering federal contributions for Medicaid, Supplemental Security Income, and special education programs. Since these are state-matched programs, similar savings would occur for state and local governments. See Special Analysis: Budget of the United States Government, 1981 (January 1980) p. 417.

[24] These five states account for nearly 25 percent of all school breakfast participants. The criteria they use vary, but are based primarily on the proportion of children in a school whose families have incomes up to 195 percent of the poverty level (the maximum income qualifying for reduced-price subsidies). See Table 20.

TABLE 20. STATE-MANDATED SCHOOL BREAKFAST PROGRAMS: CRITERIA AND PARTICIPATION, FISCAL YEAR 1979

State	Mandate Criteria	Fully Effective Date (School Year)	Percentage Change in Participation Before and After Initial Mandate
Texas	Required in all public schools with 10 percent or more children eligible for free or reduced-price lunches.	1978-1979	95.4
New York	Required in all schools in cities of 125,000 inhabitants or more.	1978-1979	11.7
Michigan	Phased mandate, for school year 1979-1980 in schools where 50 percent or more receive free or reduced-price lunches; criteria for 1980-1981 and 1981-1982, 30 percent and 20 percent.	1981-1982	15.8
Ohio	Required in schools defined as having severe need (40 percent or more of the children eligible for free or reduced-price meals; more than one-third eligible for free meals; or more than one-half of the parents requesting program).	1978-1979	15.0
Massachusetts	In school districts with a population of less than 50,000, required for schools with 100 or more students qualifying for free or reduced price meals; in school districts over 50,000, required for schools with 50 or more students qualifying for free or reduced-price meals.	1972-1973	NA

Requiring all states to establish a school breakfast program in schools where at least 25 percent of the students are eligible for free or reduced-price meals could increase federal school breakfast costs by nearly $450 million if fully implemented in fiscal year 1981. If the program was limited to schools where at least 40 percent of the students are served free or reduced-price meals (severe-need schools), federal breakfast costs would increase by nearly $340 million. Severe-need schools would qualify for higher federal reimbursements as they do under the current program.

Numerous factors will always restrict participation in this program even when it is made available. Some children receive nutritious breakfasts at home. Some school districts might not be able to adjust their busing schedules to accommodate a breakfast program.[25] On the other hand, expanded school busing under desegregation rulings could increase the demand for such a program; a school breakfast program might offset the longer hours between breakfast at home and lunch at school that result from extended busing.

Limiting the Special Milk Program (SMP)

The duplication between the special milk program (SMP) and the school lunch program has brought many proposals to limit the special milk program. The SMP was established in 1943 at a time when the school lunch program was not operating widely. Children received a half-pint of milk subsidized by the federal government. With the growth of the school lunch program, which also includes a half-pint of milk, some children began to recieve two half-pints.

The duplication could be reduced in any of several ways. One proposal would eliminate the SMP entirely, giving schools that participate only in the SMP an incentive to begin the school lunch program. Other proposals would simply eliminate the SMP from institutions that already participate in another federally supported child nutrition program requiring the serving of milk. This approach has been criticized because some children who do not participate in a lunch program but bring their lunches from home use the SMP as a means of getting subsidized milk.

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[25] See U. S. General Accounting Office, Major Factors Inhibit Expansion of School Breakfast Program (April 1980).

The nutritional effects of limiting the SMP are uncertain. Findings discussed in Chapter V suggest that higher-income children who participate in only a milk program are able to improve their diets. On the other hand, the nutritional cost-effectiveness ratio of the program for the lowest-income groups is very poor (see Table 19); both the breakfast and the lunch programs are more nutritionally efficient than the milk program for the lowest-income groups. Overall, the diets of children were not found to be significantly lacking in the major nutrients provided by milk—calcium and phosphorus—regardless of their participation in any school food service program.

Thus, strong arguments exist for limiting or modifying the SMP on the basis of program efficiency and nutritional impact. If it were eliminated from schools that already participate in another program (the Administration's fiscal year 1980 proposal), federal costs would decrease by approximately $100 million. It is unlikely that this would have any adverse effect on the nutritional status of children, especially given the increasing participation in other nutrition programs.

The Administration has suggested still another approach in its fiscal year 1981 proposal. Rather than eliminate the SMP entirely, it would reduce the federal subsidy to 5 cents for the non-needy group in schools where they are able to participate in another federal program serving milk. This would mean a decrease of about 4 cents in the average federal subsidy from the present estimate of 9.3 cents for 1981, a saving of approximately $60 million. (Non-needy children are defined as having family incomes above 125 percent of the poverty level.) This, like other proposals, would be likely to have a minimal nutritional impact, while increasing the nutritional cost-effectiveness of the program.

Nutrition Information

A final means discussed here for improving the nutritional effectiveness of government programs would be to provide more or improved information. The federal government's current nutrition information programs may be broadly categorized as those that provide information (nutrition education) and those that eliminate sources of misinformation (regulation). The public's demand for information has often exceeded the ability of all levels of government either to provide it or to counteract sources of bad or fraudulent information.

Less than 1 percent of the federal funds spent on child nutrition programs in 1980 were targeted specifically on nutrition education for children. Of the nearly 30 federal nutrition education programs, four are targeted on children 17 years of age or younger.[26] The federal nutrition education effort is fragmented among a number of federal agencies; 19 Congressional committees have legislative jurisdiction over programs with a nutrition education component.

Spending more money on children's nutrition education may not, however, improve their nutrition. One researcher has suggested that providing more information leads to better decisions only if it is presented in a consistent manner.[27] Efforts to coordinate and standardize the nutrition information in existing education programs could be an initial step in decreasing confusion on the part of the ultimate receivers.

Private firms spend $600 million annually advertising their food products to children compared to federal child nutrition education expenditures of less than $25 million in fiscal year 1981.[28] The federal government might consider directing nutrition information at children through the same media used by private firms.

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[26] See Congressional Research Service, The Role of Federal Government in Nutrition Education (March 1977).

[27] See "Information Load and Decision Quality: Some Contested Issues," Journal of Marketing Research (November 1977) as quoted in "A Primer on Nutrition Policy in the United States."

[28] See "An Assessment of the Impact on Network Revenues of Two Reductions in Advertising," Alan Pearce, ATC Symposium, No. 6, Cambridge, Massachusetts (November 20, 1976).

APPENDIX A. FOOD DISTRIBUTION AUTHORIZATION LEGISLATION

I. Section 32 of P.L. 74-320, as amended, 7 U.S.C. 612C:

Provides that an amount equal to 30 percent of customs receipts from the calendar year preceding the fiscal year shall be available to the Secretary of Agriculture. The Secretary shall use the fund only to:

- Encourage exportation of commodities by paying export payments or indemnities;
- Encourage the domestic consumption of commodities by diverting them from normal channels of trade through benefits, donations, and indemnities among persons in low-income groups; and
- Reestablish farm purchasing power by making payments to farmers.

II. Section 416 of the Agricultural Act of 1949, as amended, 7 U.S.C. 1431:

Authorizes, together with related sections of the Agricultural Act of 1949, the donation of commodities acquired by the Commodity Credit Corporation to specific outlets.

- Commodities may be donated to the Bureau of Indian Affairs or any state, federal, or private agency or agencies for school lunch programs, nonprofit summer camps, needy persons, charitable institutions, and hospitals, to the extent needy persons are served.
- CCC may pay the costs of reprocessing, packaging, transportation, handling, and other charges accruing up to the time commodities (including dairy products under Sec. 204) are donated to the appropriate receiving agency (including repackaging for institutional or home use).

III. Section 404 of the Agricultural Act of 1949 authorizes the use of CCC facilities and services to carry out activities of Section 32 of P.L. 74-320 and Section 6 of the National School Lunch Act.

IV. Section 709 of the Food and Agriculture Act of 1965 authorizes the use of CCC funds for the purchase of dairy products for domestic donation if CCC stocks are inadequate (except for fluid whole milk for schools).

V. Section 202 of the Agricultural Adjustment Act of 1949 authorizes donation of CCC stocks of dairy products to the Secretary of the Army for use by the Department of Defense and to the Administrator of Veterans' Affairs for use in hospitals, without charge except for packaging costs.

VI. Section 210 of the Agricultural Act of 1956 authorizes donation of CCC stocks to federal prisons and state penal institutions for minors.

VII. Section 707 of the Older Americans Act of 1965 authorizes the donation of CCC commodities and Section 32 commodities to the elderly with special emphasis on high-protein foods, meat, and meat alternates. States may receive cash in lieu of commodities at their option.

VIII. The Agriculture and Consumer Protection Act of 1973, P.L. 93-86, as amended by the Food and Agriculture Act of 1977:

Section 4(a) authorizes, through fiscal year 1981, appropriations for food distribution programs for needy families, and supplemental package donations to institutions, summer camps, U.S. trust territories, and Indians. This section mandates improvement in the food package offered to Indians.

Section 4(b) authorizes commodity donations to summer camps.

Section 5 authorizes payment of administrative expenses to states for the supplemental package program equal to 15 percent of the food costs, and authorizes advance payment of administrative funds to start-up costs. The Secretary must notify the Congress before making any significant changes in the food package.

IX. National School Lunch Act, as amended:

Section 6(e) requires a minimum donation of commodities or cash in lieu of commodities on a per-meal basis, based on the total number of meals served under the Act. It was added to Section 6 by P.L. 93-326. P.L. 94-105 added a provision to 6(e) that requires 75 percent of the required donations to be commodities, the remaining 25 percent to be commodities or cash in lieu of commodities at USDA's option. P.L. 95-166 added a provision to Section 6(a) that allows schools to refuse up to 20 percent of the commodities offered and to receive others as substitutes to the extent that other commodities are available.

Section 13 (q) authorizes donations from Section 32, Section 416, or Section 709 in accordance with the needs of the summer food service programs as determined by the service institutions operating the program.

Section 14 authorizes through fiscal year 1982 the use of Section 32 and CCC funds for open-market (nonsurplus) purchases to supply commodities for child nutrition and Title VI programs, and specifies that cereal, shortening, and oil products shall be made available.

Section 17(e) requires commodities or cash in lieu of commodities to be donated for lunches and suppers served in the Child Care Program at the same rate as required by Section 6(e) for school lunches. States may receive cash in lieu of commodities at their option.

Child Nutrition Act of 1966, Section 8, authorizes the donation of commodities under Section 32 and Section 416 and Section 709 to schools for use in programs under the CNA.

Section 17(1) of the Child Nutrition Act of 1966, as amended, provides that commodities available under Section 416 and Section 32 may be donated to WIC programs.

X. The Disaster Relief Act of 1974, as amended:

Section 306 authorizes donations of food through the Red Cross or other relief organizations.

Section 307 authorizes reimbursement from available disaster relief funds for expenditures by other federal agencies occasioned by disasters.

Section 409 authorizes the distribution of surplus commodities and food stamps.

Section 410 authorizes the use of Section 32 funds to stockpile commodities for use in disaster relief.

XI. Miscellaneous food donation provisions:

Agricultural Act of 1954; Act of August 19, 1958; Act of September 21, 1959; Mutual Security Act of 1954.

These mandate disposal of Commodity Credit Corporation dairy products under donation authorities, authorizes Commodity Credit Corporation to purchase processed grain food products for domestic and foreign donation, requires enrichment of cornmeal, corn grits, rice, and flour, together with specified packaging, in order to enhance and protect the nutritional value of donated foods, and requires that foods made available for foreign use by grant or foreign currency sale also be made available for domestic donation.

XII. Financing purchases of agricultural commodities by foreign governments:

Agricultural Trade Development and Assistance Act of 1954.

The Commodity Credit Corporation is authorized to finance on long-term credit the purchase of agricultural commodities by foreign governments. Priority must be given to countries that agree to use the proceeds from the sale of commodities in accordance with local development plans designed to increase nutritious and stable food supplies for the poor.

XIII. Food donations overseas:

Agricultural Trade Development and Assistance Act of 1954, Title II. The Commodity Credit Corporation makes agricultural commodities available to friendly governments, intergovernmental organizations, multilateral organizations, and nonprofit voluntary agencies, to meet famine or other extraordinary relief requirements; to combat malnutrition, especially in children; to promote economic and community development in friendly developing areas; and for needy persons and nonprofit school lunch and preschool feeding programs outside the United States.

XIV. Food for development program:

Agricultural Trade Development and Assistance Act of 1954. In order to encourage health and nutrition programs in countries receiving concessional financing for the purchase of agricultural commodities, the Secretary may permit the funds accruing from the local sale of commodities, used for such programs, to be applied against the repayment obligations of the recipient government.

APPENDIX B. BIOCHEMICAL ANALYSES OF CHILDREN'S DIETS

Biochemical analyses are usually considered to be more objective indicators of nutritional status than dietary and clinical assessments. Because of measurement difficulties, however, as well as some disagreement concerning appropriate standards to apply to school-age children, the results of biochemical analyses should only be considered suggestive of certain nutritional deficiencies, not definitive.

Hemoglobin. Hemoglobin is the viscid (thick, syrupy) solution in red blood cells. About two-thirds of the body's iron content is stored in the hemoglobin. Therefore, when the iron content of the diet is deficient, the concentration of hemoglobin in the red blood cells falls markedly. Since hemoglobin molecules combine with oxygen, which is then transported from the lungs to the tissues, a reduction in hemoglobin can cause anemia. The shortage of oxygen transported to the tissues results in poor tissue oxygenation and can cause extensive damage throughout the body or even death. Lower viscosity of the blood resulting from anemia leads to increased blood flow, which may promote excessive cardiac output and ultimate heart failure. Characteristic symptoms of iron deficiency anemia include: pallor, easy fatigue, decreased resistance to infection, soreness of the mouth, and heart palpitation after exercise.

Iron deficiency anemia appears to be a major problem in the population today, particularly among young children. While little agreement exists among hematologists as to what level of hemoglobin is characteristic of iron deficiency, this study took a concentration of hemoglobin below about 13 grams per 100 milliliters of blood as indicating a low level.[1] The mean

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[1] The standards used to determine acceptable biochemical assays are shown in Appendix III, Table VII of Preliminary Findings of the First Health and Nutrition Examination Survey, United States 1971-1972, U.S. Department of Health, Education, and Welfare (January 1974). Hemoglobin concentrations of less than 11.5 gm./100 ml. for children 6 to 11, 13.0 gm./100 ml. for males 12 to 17 and 11.5 gm./100 ml. for females 12 to 17 are considered low concentrations.

APPENDIX TABLE B-1. MEAN VALUES FROM BIOCHEMICAL ANALYSIS OF BLOOD SAMPLES ACCORDING TO CHILD NUTRITION PROGRAM PARTICIPATION STATUS, SCHOOLCHILDREN AGED 6 TO 21, HEALTH AND NUTRITION EXAMINATION SURVEY, 1971-1974

	Serum Protein (gm/100ml)	Serum Albumin (gm/100ml)	Serum Cholesterol (mg/100ml)	Hemoglobin (gm/100ml)
School Breakfast Program				
Participants	7.23	4.65	17.09	13.89
Nonparticipants	7.21	4.62	17.29	14.11
Not Available	7.07	4.55	17.69	13.78
Overall Average	7.07	4.55	17.68	13.79
Lunch Program				
Participants	7.05	4.49	17.52	13.63
Nonparticipants	7.08	4.57	17.67	13.88
Not Available	7.07	4.53	17.71	13.71
Overall Average	7.06	4.52	17.61	13.72
Milk Program				
Participants	7.00	4.51	17.68	13.68
Nonparticipants	7.06	4.57	17.48	13.80
Not Available	7.08	4.54	17.82	13.79
Overall Average	7.03	4.54	17.68	13.75
Breakfast-Lunch				
Breakfast and Lunch	7.26	4.52	17.51	13.58
Breakfast or Lunch	7.05	4.50	17.52	13.63
Overall Average	7.06	4.50	17.52	13.63
Breakfast-Milk				
Breakfast and Milk	7.10	4.58	16.31	14.51
Breakfast or Milk	6.98	4.52	17.65	13.68
Overall Average	6.98	4.52	17.64	13.69
Lunch-Milk				
Lunch and Milk	7.05	4.52	17.62	13.70
Lunch or Milk	7.02	4.50	17.58	13.65
Overall Average	7.04	4.51	17.60	13.67
All Programs				
All Three	7.12	4.43	17.44	13.04
Lunch Only or Milk Only or Breakfast Only	7.02	4.50	17.58	13.65
Breakfast and Lunch or Breakfast and Milk or Lunch and Milk	7.06	4.52	17.62	13.69

(Continued)

APPENDIX TABLE B-1. (Continued)

	Hematocrit (Percent)	Serum Iron (gm/100ml)	Transferring Binding Capacity (gm/100ml)	Transferring Saturation (percent)
School Breakfast Program				
Participants	41.7	84.4	3,745.6	22.7
Nonparticipants	41.4	108.0	3,694.0	29.8
Not Available	40.7	103.4	3,773.4	27.8
Overall Average	40.7	103.5	3,770.4	27.9
Lunch Program				
Participants	40.3	102.0	3,808.2	27.2
Nonparticipants	41.0	104.9	3,774.2	28.3
Not Available	40.3	102.0	3,775.9	27.4
Overall Average	40.5	102.8	3,790.8	27.6
Milk Program				
Participants	40.3	101.3	375.1	27.3
Nonparticipants	40.9	106.1	370.6	29.7
Not Available	40.6	101.8	381.9	27.1
Overall Average	40.5	102.7	376.6	27.7
Breakfast-Lunch				
Breakfast and Lunch	39.7	98.3	382.4	26.5
Breakfast or Lunch	40.3	101.6	380.9	27.1
Overall Average	40.3	101.5	380.9	27.1
Breakfast-Milk				
Breakfast and Milk	41.6	128.4	347.8	36.9
Breakfast or Milk	40.3	101.1	375.1	27.2
Overall Average	40.3	101.3	274.8	27.3
Lunch-Milk				
Lunch and Milk	40.3	100.3	384.3	26.4
Lunch or Milk	40.3	101.5	378.6	27.2
Overall Average	40.3	100.8	381.6	26.8
All Programs				
All Three	38.7	103.8	385.6	27.2
Lunch Only or Milk Only or Breakfast Only	40.7	101.4	378.6	27.2
Breakfast and Lunch or Breakfast and Milk or Lunch and Milk	40.3	100.3	384.2	26.5

hemoglobin concentration ranged from a low of 13.6 grams for breakfast and lunch participants to a high of 14.5 grams for breakfast and milk participants (see Appendix Table B-1). these were judged to be within the acceptable range of hemoglobin counts.

For the child nutrition programs analyzed, no low hemoglobin concentration was discovered for children who participated in only the breakfast program or in both the breakfast and milk programs. Approximately 4.6 percent of the lunch-program-only participants had low hemoglobin, and 4.7 percent of the lunch and milk participants had low hemoglobin concentrations (see Appendix Table B-2).

APPENDIX TABLE B-2. PREVALENCE OF LOW HEMOGLOBIN CONCENTRATION FOR CHILDREN AGED 6-21 BY CHILD NUTRITION PROGRAM PARTICIPATION STATUS (In percents)

Participation Status	Single Child Nutrition Program		
	Breakfast Only	School Lunch Only	Milk Only
Participants	--	4.6	3.1
Nonparticipants	6.2	4.3	3.6
Not Available	3.8	3.7	4.2

	Multiple Child Nutrition Program			
	Breakfast and Lunch	Breakfast and Milk	Lunch and Milk	All Three
Participants	5.6	--	4.7	5.1

SOURCE: Health and Nutrition Examination Survey, 1971-1974.

In general, the data suggest a relationship between hemoglobin concentration and dietary iron intake. Breakfast and milk program participants appear to benefit slightly from a higher concentration of hemoglobin (less iron deficiency anemia) as a result of the nutrient patterns found in those programs.

Hematocrit. Blood is made up of three components--red blood cells, white blood cells, and platelets (often classified as white blood cells). The percentage of the blood that is made up of red blood cells is called hematocrit.[2]

There is a strong relationship between the hematocrit count and hemoglobin concentration. However, in certain instances iron deficiency anemia can develop even with sufficient numbers of red blood cells in circulation. Pernicious anemia occurs when, because of a lack of vitamin B_{12} or folic acid, the number and concentration of red blood cells drops dramatically. The same physiological effects occur as with iron deficiency anemia.

Appendix Table B-3 summarizes the proportion of children found to have low hematocrit counts. The incidence of low hematocrit is slightly higher than the incidence of low hemoglobin concentrations. Again, however, no low hematocrit values were found for breakfast-only participants or for those who participated in both the breakfast and milk programs. Since a dietary shortage of vitamin B_{12} and folic acid is extremely rare, the high incidence of low hematocrit values could be related to other metabolic factors.

Serum Protein. Proteins in the blood play a number of roles, but one major role is to maintain the body acid-base neutrality. Serum proteins form weak acids when mixed with alkalai salts, increasing the buffer effects of the blood. The buffer effect helps maintain osmotic equilibrium in the extracelluair compartments, thereby preventing leakage of water into interstitial spaces. Such leakage is known as edema. If the buffer nature of blood is fully depleted, acidosis can occur; the inability to metabolize food will follow.

Serum proteins are antibodies used to combat infection; therefore, a decrease in serum protein results in increased susceptibility to infection. Finally, proteins contain amino acids that are essential for body and tissue growth.

Appendix Table B-4 summarizes the proportion of children found to have low serum protein levels. Low serum protein levels were defined as less than 6.0 grams per 100 milliliters of blood. As in the previous biochemical assays, the incidence of low serum

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2. Standard hematocrit levels used in the study were: for children 6 to 11 years of age, 35 to 39 percent; for males 12 to 17, 40 to 44 percent; and for females 12 to 17, 35 to 38 percent.

APPENDIX TABLE B-3. PREVALENCE OF LOW HEMATOCRIT VALUES FOR CHILDREN AGED 6-21 BY CHILD NUTRITION PROGRAM PARTICIPATIONS STATUS (In percents)

Participation Status	Single Child Nutrition Program		
	Breakfast Only	School Lunch Only	Milk Only
Participants	--	9.3	6.4
Nonparticipants	6.2	6.9	4.5
Not Available	6.9	7.0	8.5

	Multiple Child Nutrition Program			
	Breakfast and Lunch	Breakfast and Milk	Lunch and Milk	All Three
Participants	4.9	--	6.7	5.7

SOURCE: Health and Nutrition Examination Survey (1971-1974).

APPENDIX TABLE B-4. PREVALENCE OF LOW SERUM PROTEIN LEVELS FOR CHILDREN AGED 6-21 BY CHILD NUTRITION PROGRAM PARTICIPATION STATUS (In percent)

Participation Status	Single Child Nutrition Program		
	Breakfast Only	School Lunch Only	Milk Only
Participants	--	0.9	1.9
Nonparticipants	--	2.8	2.7
Not Available	2.0	1.0	1.4

	Multiple Child Nutrition Program			
	Breakfast and Lunch	Breakfast and Milk	Lunch and Milk	All Three
Participants	--	--	0.8	1.6

SOURCE: Health and Nutrition Examination Survey (1971-1974).

protein levels for school-breakfast-only participants was nonexistent. Children who reported not participating in a lunch or milk program (or in any other child nutrition program) had the highest prevalence of low serum protein levels. In the dietary analysis of the previous section, school-breakfast-only participants had high levels of protein consumption, while nonparticipants in the lunch and milk programs had relatively lesser amounts of protein intake.

Serum Albumin. Serum albumin levels are maintained by synthesis of protein in the body and will be normal when adequate amounts of amino acids are available. Serum albumin levels will fall only after other signs of protein deficiency are evident. No abnormal levels of serum albumin were found in this analysis. While this should not be interpreted as suggesting that there is no protein deficiency (see previous paragraphs on serum protein), it does suggest that the severe protein deficiency experienced in developing countries is not evident in this country.

Serum Cholesterol. Finally, heart disease is a major health problem. While unequivocal evidence is lacking, it is believed that a reduction in the cholesterol content of the blood will lower the risk of all forms of atherosclerosis diseases. Cholesterol is a fat-related compound that is present in many animal foods and can also be synthesized by the body. High levels of serum cholesterol have been found to be related to heart attacks, and cholesterol has been shown to be the major constituent of precipitates that form on the inside of some blood vessels. While atherosclerosis is not common in children, dietary habits formed during the developing years may continue throughout life and influence the severity of atherosclerosis in later life.

No generally agreed-upon standard exists for serum cholesterol levels, especially for children.[3] In general, no major differences were observed between the serum cholesterol levels of multiple-program and single-program participants. Also, slightly higher levels of serum cholesterol were observed for children who either did not participate in a program or did not have a program available to them.

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3. Data presented in Appendix Table B-1 suggest a very narrow band in mean values of serum cholesterol. Serum cholesterol ranged from a low of 17.1 mg./100 ml. for school-breakfast only participants to a high of 17.7 mg./100 ml. for milk-only participants.

Based on this data, no evidence exists to suggest that child nutrition program participation either positively or negatively effects the level of serum cholesterol in children. As discussed earlier, the analysis of the composition of children's diet also did not find high concentrations of fat intake among the participants.

APPENDIX TABLE C-1. TOTAL EXPENDITURES (OBLIGATIONS) FOR FEDERAL CHILD NUTRITION PROGRAMS INCLUDING STATE AND LOCAL EXPENDITURES AND CHILDREN'S PAYMENTS, FISCAL YEARS 1967-1980 (In millions of dollars)

Program	1967	1968	1969	1970	1971	1972	1973	1974
National School Lunch Program (NSLP)								
School Lunch, Regular	147.7	154.7	161.2	167.8	225.7	248.4	324.1	412.1
School Lunch, Special Assistance	2.0	4.9	42.0	132.0	308.9	491.4	555.3	683.2
Donated Commodities	188.4	276.0	272.0	265.8	279.2	312.1	315.2	316.1
Cash in Lieu of Commodities	--	--	--	--	--	--	70.8	--
Federal Subtotal	338.1	435.6	475.2	565.7	813.8	1,051.9	1,265.4	1,411.4
State and Local	400.4	440.5	475.2	546.7	593.3	616.0	692.7	810.3
Children's Payments	925.0	996.0	1,041.2	1,104.9	1,090.2	1,080.4	1,123.7	1,174.2
Total: All Sources	1,663.5	1,872.1	1,991.6	2,217.3	2,497.3	2,748.3	3,081.8	3,395.9
School Breakfast Program (SBP)	0.6	2.0	5.5	10.9	20.1	24.4	37.0	60.7
Child Care Food Program (CCFP)	--	--	1.1	5.6	13.9	17.7	20.6	31.0
Summer Food Service Program (SFSP)	--	--	0.3	1.7	8.7	22.1	26.7	33.8
Special Milk Program	98.8	101.9	101.9	101.5	92.3	90.2	94.8	61.4
Special Supplemental Food, Programs								
Women, Infants and Children (WIC)	--	--	--	--	--	--	--	10.4
Commodity Supplemental Program	--	--	1.0	7.8	12.8	12.9	13.3	15.1
Equipment Assistance	0.7	0.7	10.2	16.7	37.1	15.9	16.0	29.1
Federal Support for State Administrative Expenses	--	--	0.5	1.7	3.5	2.7	3.4	3.7
Nutritional Studies and Education	--	--	--	--	0.7	0.6	0.7	0.9
Total All Programs	1,763.6	1,976.7	2,112.1	2,363.2	2,686.4	2,934.8	3,294.3	3,653.0
Federal Share	438.2	540.2	595.7	711.6	1,002.9	1,238.4	1,477.9	1,657.5

(Continued)

APPENDIX TABLE C-1. (Continued)

	1975	1976	TQ	1977	1978*	1979*	1980*
National School Lunch Program (NSLP)							
School Lunch, Regular	463.4	516.0	66.8	564.8	618.8	688.3	780.2
School Lunch, Special Assistance	825.6	963.4	125.8	1,013.2	1,206.3	1,321.5	1,521.9
Donated Commodities	411.5	375.9	50.7	501.4	527.9	677.5	806.5
Cash in Lieu of Commodities	5.2	38.2	0.9	40.8	80.7	6.2	—
Federal Subtotal	1,705.7	1,843.5	244.2	2,120.2	2,433.7	2,693.5	3,108.6
State and Local	848.8	930.0	130.0	960.0	1,086.0	1,220.2	1,408.2
Children's Payments	1,308.5	1,310.0	155.0	1,290.0	1,459.0	1,637.6	1,890.0
Total: All Sources	3,863.0	4,133.5	529.2	4,370.2	4,978.7	5,551.3	6,406.8
School Breakfast Program (SB)	86.1	113.0	16.8	150.2	177.7	215.0	279.8
Child Care Food Program (CCFP)	54.9	87.1	21.4	122.5	156.9	151.0	216.8
Summer Food Service Program (SFSP)	50.9	72.5	127.6	128.8	114.5	148.5	126.8
Special Milk Program	122.9	144.1	20.6	152.1	137.9	142.0	153.8
Special Supplemental Food Programs							
Women, Infants and Children (WIC)	89.3	155.5	48.4	279.0	385.7	550.0	768.0
Commodity Supplemental Program	17.3	17.3	4.3	14.8	18.9	19.5	21.8
Equipment Assistance	26.3	24.6	6.4	27.2	26.3	24.0	20.0
Federal Support for State Administrative Expenses	6.0	4.0	1.0	13.7	19.2	32.0	34.9
Nutritional Studies and Education	1.1	1.0	—	0.6	1.7	27.9	21.7
Total All Programs	4,317.8	4,752.7	775.7	5,259.1	6,017.5	6,861.2	8,050.4
Federal Share	2,160.5	4,171.7	90.7	3,009.1	3,472.5	4,003.4	4,752.2

(Continued)

APPENDIX TABLE C-1. (Continued)

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* = Preliminary and estimated; columns may not add due to rounding.

SOURCES: U.S. Department of Agriculture, Food and Nutrition Service, Budget Division, Child Nutrition Programs, Fiscal Years 1947-1974 (April 4, 1975), and Fact Sheet on Child Feeding Programs, Fiscal Years 1975-1978 (June 15, 1979 and January 15, 1980).

U.S. Senate, Agriculture, Rural Development and Related Agencies Appropriation Bill, 1979, S. R. 95-1058 (legislative day, May 17, 1978).

U.S. House of Representatives, Rural Development and Related Agencies Appropriations Bill, 1979, H. R. 95-1290 (June 13, 1978).

Making Appropriations for the Agriculture, Rural Development, and Related Agencies, Conference Report No. 95-1579 (September 18, 1978).

Public Law 96-38, Supplemental Appropriations Act, 1979.

U.S. Senate, Agriculture, Rural Development and Related Agencies Appropriations Bill, 1980, S. R. 96-246 (legislative day, June 21, 1979).

U.S. House of Representatives, Agriculture, Rural Development and Related Agencies Appropriations Bills, 1980, H. R. 96-242 (June 7, 1979).

APPENDIX TABLE C-2. DAILY INTAKE OF NUTRIENTS BY CHILD NUTRITION PROGRAM PARTICIPATION STATUS, SCHOOL CHILDREN AGED 6 TO 21, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974[a]

Program and Participation Status[b]	Food Energy (Calories)	Protein (gm)	Calcium (gm)	Iron (mg)	Vitamin A (I.U.)[c]	Vitamin C (mg)	Niacin (mg)
School Breakfast Program Only							
Participants	3,278.4	143.3	1,132.5	18.9	7,883.9	283.8	35.0
Nonparticipants	1,988.7	78.0	1,125.8	10.3	3,348.7	120.0	16.4
Overall Average of Participants and Nonparticipants	2,156.9	86.5	1,126.7	11.4	3,940.2	141.4	18.8
Not Available	2,211.1	82.9	1,096.4	12.3	3,945.9	89.7	16.3
National School Lunch Program Only							
Participants	2,190.3	81.7	1,087.0	11.8	4,386.8	79.6	15.9
Nonparticipants	2,269.1	86.1	1,135.2	12.5	3,708.0	88.1	16.8
Overall Average of Participants and Nonparticipants	2,213.6	83.0	1,101.3	12.0	4,185.8	82.1	16.2
Not Available	2,147.1	80.2	1,061.8	12.1	4,254.0	94.3	16.0
Special Milk Program Only							
Participants	2,315.0	86.8	1,267.2	12.2	4,931.0	103.8	17.5
Nonparticipants	2,251.0	85.2	1,109.5	12.8	3,754.6	89.9	17.1
Overall Average of Participants and Nonparticipants	2,288.3	86.1	1,201.5	12.5	4,440.6	98.0	17.3
Not Available	2,172.8	82.1	1,086.7	12.0	4,118.8	92.0	15.8

(Continued)

APPENDIX TABLE C-2. (Continued)

Program and Participation Status[b]	Thiamin (mg)	Riboflavin (mg)	Phosphorus (mg)	Fat (gm)	Carbohydrates (gm)	Sodium (gm)	Potassium (mg)
School Breakfast Program Only							
Participants	2.2	2.4	2,071.1	114.2	422.2	4,194.6	4,114.7
Nonparticipants	1.4	2.2	1,256.5	85.9	231.9	1,737.2	2,541.0
Overall Average of Participants and Nonparticipants	1.5	2.3	1,362.8	89.6	256.7	2,151.7	2,746.2
Not Available	1.5	2.2	1,337.9	92.7	266.4	2,419.4	2,366.2
National School Lunch Program Only							
Participants	1.4	2.2	1,337.7	92.4	262.6	2,487.5	2,444.1
Nonparticipants	1.5	2.3	1,409.3	97.8	267.3	2,444.6	2,532.0
Overall Average of Participants and Nonparticipants	1.4	2.2	1,358.9	94.0	264.0	2,474.8	2,470.1
Not Available	1.4	2.2	1,266.8	87.1	264.8	2,354.4	2,234.4
Special Milk Program Only							
Participants	1.6	2.5	1,462.0	97.8	277.5	2,538.2	2,557.6
Nonparticipants	1.5	2.2	1,361.6	96.7	265.6	2,396.0	2,477.4
Overall Average of Participants and Nonparticipants	1.6	2.4	1,420.1	97.3	272.5	2,478.9	2,524.2
Not Available	1.5	2.2	1,317.1	89.5	265.5	2,392.4	2,310.8

(Continued)

APPENDIX TABLE C-2. (Continued)

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a. Standards used for evaluating nutrient intake for energy, protein, calcium, iron, vitamin A, and Vitamin C differ slightly from standards adopted by the World Health Organization and the Food and Nutrition Board of the National Academy of Sciences (see Appendix II of U. S. Department of Health, Education and Welfare, Dietary Intake Findings, United States 1971-1974, Vital and Health Statistics, Series 11, Number 202 (July 1977). Standards for all other nutrients used in the table are based on National Academy of Sciences, Recommended Dietary Allowance, Eighth Edition (1974).

b. Data presented in this table are for single-program participation status. Participants are defined as participants only in a single program (e.g., breakfast-only participants). Nonparticipants are defined as persons having the specific program available to them but not participating in the program or in any other child nutrition program. For example, nonparticipants in the school breakfast program are those persons reporting having a school breakfast program available to them but not participating in the program, nor in the school lunch or special milk programs.

c. International units.

APPENDIX TABLE C-3. DAILY INTAKE OF NUTRIENTS BY MULTIPLE AND SINGLE CHILD NUTRITION PROGRAM PARTICIPATION STATUS, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974[a]

Participation Status	Food Energy (Calories)	Protein (gm)	Calcium (gm)	Iron (mg)	Vitamin A (I.U.)	Vitamin C (mg)	Niacin (mg)
Breakfast and Lunch	2,001.8	70.7	1,086.7	9.8	8,361.0	90.3	12.6
Breakfast Only or Lunch Only	2,195.5	82.0	1,087.2	11.8	4,403.7	80.6	16.0
Overall Average	2,187.6	81.5	1,087.2	11.7	4,565.9	81.0	15.9
Breakfast and Milk	2,947.7	125.6	1,192.9	13.6	2,910.2	115.8	20.0
Breakfast Only or Milk Only	2,322.8	87.2	1,266.2	12.2	4,954.7	105.3	17.6
Overall Average	2,337.3	88.1	1,264.5	12.2	4,907.2	105.5	17.7
Lunch and Milk	2,162.6	81.9	1,152.7	11.9	4,599.3	82.4	15.5
Lunch or Milk Only	2,237.0	83.6	1,154.5	11.9	4,590.6	88.7	16.5
Overall Average	2,195.8	82.7	1,153.5	11.9	4,595.6	85.2	15.9
All Three Programs	2,414.5	92.6	1,201.1	13.9	4,394.1	72.8	15.4
Breakfast Only or Lunch Only or Milk Only	2,240.1	83.8	1,154.4	12.0	4,600.5	89.3	15.5
Overall Average	2,255.5	84.6	1,158.5	12.2	4,582.3	87.8	16.5
All Three Programs	2,414.5	92.6	1,201.1	13.9	4,394.1	72.8	15.4
Breakfast and Lunch or Breakfast and Milk or Lunch and Milk	2,162.1	82.9	1,151.7	11.9	4,658.5	82.6	15.5
Overall Average	2,179.9	82.7	1,155.2	12.0	4,639.9	81.9	15.5

(Continued)

APPENDIX TABLE C-3. (Continued)

Participation Status	Thiamin (mg)	Riboflavin (mg)	Phosphorus (mg)	Fat (gm)	Carbohydrates (gm)	Sodium (gm)	Potassium (mg)
Breakfast and Lunch	1.2	2.1	1,329.3	82.4	249.8	2,368.9	2,384.4
Breakfast Only or Lunch Only	1.4	2.2	1,341.2	92.5	263.4	2,499.2	2,452.2
Overall Average	1.4	2.2	1,340.7	92.1	262.8	2,493.9	2,449.4
Breakfast and Milk	1.8	2.3	1,443.6	121.2	342.0	1,950.6	3,424.8
Breakfast Only or Milk Only	1.6	2.5	1,466.9	97.9	278.7	2,557.3	2,570.2
Overall Average	1.6	2.5	1,466.4	98.4	280.2	2,543.2	2,590.1
Lunch and Milk	1.4	2.3	1,362.1	89.8	261.5	2,469.3	2,449.9
Lunch or Milk Only	1.4	2.3	1,384.2	94.4	268.2	2,506.5	2,486.6
Overall Average	1.4	2.3	1,372.0	91.8	264.5	2,485.9	2,466.3
All Three Programs	1.6	2.4	1,540.4	104.4	280.9	2,552.2	2,725.7
Breakfast Only or Lunch Only or Milk Only	1.4	2.3	1,386.3	94.5	268.7	2,513.8	2,491.5
Overall Average	1.4	2.3	1,399.9	95.4	269.8	2,517.2	2,512.1
All Three Programs	1.6	2.4	1,540.4	104.4	280.9	2,552.2	2,725.7
Breakfast and Lunch or Breakfast and Milk or Lunch and Milk	1.4	2.3	1,361.8	89.8	261.6	2,466.1	2,451.5
Overall Average	1.4	2.3	1,375.5	90.8	263.0	2,472.2	2,470.8

(Continued)

APPENDIX TABLE C-3. (Continued)

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a. Standards used for evaluating nutrient intake for energy, protein, calcium, iron, Vitamin A, and Vitamin C differ slightly from standards adopted by the World Health Organization and the Food and Nutrition Board of the National Academy of Sciences (see Appendix II of U. S. Department of Health, Education and Welfare, *Dietary Intake Findings, United States 1971-1974*, Vital and Health Statistics, Series 11, Number 202 (July 1977). Standards for all other nutrients used in the table are based on National Academy of Sciences, *Recommended Dietary Allowance*, Eighth Edition (1974).

APPENDIX TABLE C-4. (Continued)

Program and Participation Status[b]	Niacin	Thiamin	Riboflavin	Phosphorus	Mean
School Breakfast Program Only					
Participants	185.5	156.3	148.2	188.2	95.4
Nonparticipants	102.1[c]	114.4	160.2	132.0[d]	84.9[d]
Overall Average of Participants and Nonparticipants	113.0	119.9	158.6	139.3	86.2
Not Available	100.5	120.3	162.7	132.7	86.1
National School Lunch Program Only					
Participants	96.6	111.9	161.1	131.5	86.0
Nonparticipants	104.6	124.0[c]	166.1	138.1	86.3
Overall Average of Participants and Nonparticipants	99.0	115.5	162.9	133.5	86.1
Not Available	97.4	116.3	158.6	127.0	85.8
Special Milk Program Only					
Participants	105.9	124.4	188.8	147.5	89.6
Nonparticipants	106.6	120.2	166.8[a]	136.2	86.8[d]
Overall Average of Participants and Nonparticipants	106.2	122.6	179.6	142.8	88.4
Not Available	96.9	120.2	159.3	129.9	85.5

(Continued)

APPENDIX TABLE C-5. (Continued)

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a. Standards used for evaluating nutrient intake for energy, protein, calcium, iron, Vitamin A, and Vitamin C differ slightly from standards adopted by the World Health Organization and the Food and Nutrition Board of the National Academy of Sciences (see Appendix II of U. S. Department of Health, Education and Welfare, Dietary Intake Findings, United States 1971-1974, Vital and Health Statistics, Series 11, Number 202 (July 1977). Standards for all other nutrients used in the table are based on National Academy of Sciences, Recommended Dietary Allowance, Eighth Edition (1974).

b. Indicates that the difference between two-program and one-program participants in the daily intake of nutrients as a percent of recommended daily allowance is significant at the 5 percent level or that the difference between three-program participants and one- or two-program participants is significant at the 5 percent level.

c, Same as b but significant at the 10 percent level.

APPENDIX TABLE C-6. IMPACT OF BREAKFAST PROGRAM PARTICIPATION HOLDING CONSTANT POVERTY STATUS, WITH INTERACTION OF OTHER VARIABLES, ON NUTRIENT ADEQUACY RATIOS OF CHILDREN AGED 6 TO 21, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974 (Change in percentage points)

	Less than 125 Percent of Poverty Level			125 to 195 Percent of Poverty Level			More than 195 Percent of Poverty Level			
Nutrient	Participant	Non-participant	Non-available	Participant	Non-participant	Non-available	Participant	Non-participant	Non-available	F-Value
Energy (Calories)	28.71	-3.50	0.94	9.87	9.44	8.93	25.52	2.66	—	3.74[a]
Protein	199.17	199.43	127.34	-21.01	-10.61	-20.38	76.98	-2.60	—	5.98[a]
Calcium	296.83	237.16	266.68	93.79	74.61	74.71	24.97	30.65	—	3.21[a]
Phosphorus	142.77	104.60	110.14	29.66	29.57	24.38	51.92	6.82	—	3.28[a]
Vitamin A	-57.48	-87.22	103.91	492.58	436.30	468.11	64.82	-14.45	—	1.47
Thiamin	159.83	130.14	127.97	-15.47	-28.28	-26.53	34.67	-0.18	—	4.30[a]
Riboflavin	207.74	176.07	191.55	272.77	253.65	260.02	23.60	4.18	—	2.68[a]
Vitamin C	265.05	248.86	272.13	128.94	116.83	101.60	214.98	1.44	—	0.75
Mean Adequacy Ratio	17.79	14.78	14.69	38.48	36.30	32.92	7.99	-0.38	—	3.53[a]
Number of Observations	74	50	677	19	28	479	9	51	832	

a. Indicates significance at the 5 percent level.

b. Indicates significance at the 10 percent level.

APPENDIX TABLE C-7. IMPACT OF LUNCH PROGRAM PARTICIPATION HOLDING CONSTANT POVERTY STATUS, WITH INTERACTION OF OTHER VARIABLES, ON NUTRIENT ADEQUACY RATIOS OF CHILDREN AGED 6 TO 21, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974 (Change in percentage points)

Nutrient	Less than 125 Percent of Poverty Level			125 to 195 Percent of Poverty Level			More than 195 Percent of Poverty Level			F-Value
	Participant	Nonparticipant	Nonavailable	Participant	Nonparticipant	Nonavailable	Participant	Nonparticipant	Nonavailable	
Energy (Calories)	-9.08	-4.82	—	4.74	1.16	—	-0.31	-3.27	—	0.29
Protein	6.60	8.43	—	13.14	5.61	—	6.53	4.72	—	0.64
Calcium	2.12	-1.35	—	16.16	26.73	—	5.27	7.08	—	0.53
Phosphorus	-0.63	-0.65	—	13.64	16.04	—	3.04	4.54	—	—
Vitamin A	35.39	5.59	—	25.05	2.02	—	-14.95	-23.95	—	2.27[a]
Thiamin	-9.32	6.57	—	-2.36	-0.98	—	-8.94	-2.40	—	0.76
Riboflavin	14.54	9.23	—	14.13	18.80	—	-1.99	-2.46	—	1.52
Vitamin C	-25.86	-1.24	—	-3.05	3.39	—	-17.56	-9.26	—	0.50
Mean Adequacy Ratio	2.24	0.63	—	1.35	3.43	—	0.89	-0.36	—	0.84
Number of Observations	670	78	54	359	92	77	520	204	166	

a. Indicates significance at the 5 percent level.

APPENDIX TABLE C-8. IMPACT OF MILK PROGRAM PARTICIPATION HOLDING CONSTANT POVERTY STATUS, WITH INTERACTION OF OTHER VARIABLES, ON NUTRIENT ADEQUACY RATIOS OF CHILDREN AGED 6 TO 21, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974 (Change in percentage points)

	Less than 125 Percent of Poverty Level			125 to 195 Percent of Poverty Level			More than 195 Percent of Poverty Level			
Nutrient	Participant	Nonparticipant	Nonavailable	Participant	Nonparticipant	Nonavailable	Participant	Nonparticipant	Nonavailable	F-Value
Energy (Calories)	2.81	0.78	—	-6.31	1.87	—	-1.39	-2.43	—	0.65
Protein	8.19	-7.64	—	-6.97	2.67	—	1.03	-2.00	—	0.32
Calcium	-2.92	-30.94	—	18.87	-15.73	—	8.20	-6.34	—	2.65[a]
Phosphorus	-2.02	-11.80	—	-1.34	-7.35	—	3.36	-2.90	—	0.38
Vitamin A	11.86	8.41	—	-32.74	-40.69	—	26.72	3.24	—	1.45
Thiamin	3.45	3.26	—	-14.08	-18.39	—	2.34	-0.63	—	0.79
Riboflavin	1.32	-12.43	—	1.59	-22.20	—	12.59	2.27	—	1.78[b]
Vitamin C	19.12	-14.39	—	-11.06	-20.96	—	14.39	13.76	—	0.51
Mean Adequacy Ratio	0.20	-3.00	—	0.94	-3.24	—	0.29	-0.54	—	1.06
Number of Observations	472	69	261	306	60	161	484	143	264	

a. Indicates significance at the 5 percent level.

b. Indicates significance at the 10 percent level.

APPENDIX TABLE C-9. ESTIMATED EQUATIONS WITH NUTRIENT ADEQUACY RATIO (NAR) AND MEAN ADEQUACY RATIO (MAR) AS DEPENDENT VARIABLES, FOR CHILDREN AGED 6 TO 21: HEALTH AND NUTRITION EXAMINATION SURVEY, 1971-1974 (F Value in parentheses)

					Age and Sex		
Dependent Variable (NAR/MAR)	Intercept	Ln Household Income	Number Household Members	Schooling Household Head	Male x Age	Female x Age	Age of Household Head
Energy (calories)	125.567	-2.102	-0.535	0.081	-1.389	-1.087	-0.209
		(4.38)^a	(1.63)	(0.07)	(28.40)^a		(3.50)^b
Protein	302.258	-3.047	-1.172	--	--	--	-0.375
		(1.74)	(1.98)				(3.59)^b
Calcium	213.838	3.545	-3.851	3.452	0.224	-9.501	--
		(0.84)	(11.95)^a	(39.70)^a	(159.21)^a		
Phosphorus	185.249	-0.263	-2.053	1.443	1.106	-4.212	0.522
		(0.01)	(8.37)^a	(7.78)^a	(118.65)^a		(6.64)^a
Vitamin A	248.015	-10.023	--	--	--	--	--
		(4.50)^a					
Thiamin	141.643	-1.469	-1.257	0.288	--	--	--
		(0.19)	(2.44)	(0.20)			
Riboflavin	139.698	2.747	--	2.662	--	--	--
		(1.67)		(53.18)^a			
Vitamin C	191.620	-0.529	-3.667	5.319	-1.982	-3.620	-0.802
		(0.00)	(2.79)^b	(6.25)^a	(9.82)^a		(2.92)^b
MAR	90.786	0.824	-0.541	0.350	-0.600	-1.263	--
		(2.62)^b	(6.09)^a	(21.95)^a	(127.88)^a		

(Continued)

APPENDIX TABLE C-9. (Continued)

Dependent Variable (NAR/MAR)	Sex[e]	Race[f]	Other	Overall F-Value	R^2[g]
Energy (calories)	--	--	--	20.18	60.2
Protein	--	--	--	102.52	92.8
Calcium	-64.483 (16.00)[a]	36.791 (39.65)[a]	--	135.15	91.7
Phosphorus	--	--	--	102.88	88.7
Vitamin A	--	--	(see note 1) (4.81)[a]	12.83	49.5
Thiamin	--	--	--	19.18	55.3
Riboflavin	26.191 (40.20)[a]	19.519 (15.95)[a]	--	58.57	75.6
Vitamin C	--	-21.786 (2.14)	--	4.41	22.2
MAR	--	--	(see note 2) (2.95)[a]	40.16	73.9

(Continued)

APPENDIX TABLE C-9. (Continued)

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a. Indicates significance at 5 percent level.

b. Indicates significance at 10 percent level.

c. Excluded interaction term black-female.

d. Dummy variable for region; excluded category "west" region.

e. Dummy variable for sex; excluded category female.

f. Dummy variable for race; excluded category nonwhite.

g. Proxy for R^2 in generalized least square estimate derived from overall F-ratio.

Note 1. Additional interaction terms included in equation but not shown in Table for race crossed with region of country.

Note 2. Additional interaction terms included in equation but not shown in Table for person's sex crossed with sex of head of household.

APPENDIX TABLE C-4. DAILY INTAKE OF NUTRIENTS AS A PERCENT OF RECOMMENDED DIETARY ALLOWANCE BY CHILD NUTRITION PROGRAM PARTICIPATION STATUS, SCHOOL CHILDREN AGED 6 TO 21, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974[a] (In percents)

Program and Participation Status[b]	Food Energy (Calories)	Protein	Calcium	Iron	Vitamin A	Vitamin C
School Breakfast Program Only						
Participants	114.1	224.1	216.2	120.1	233.3	533.1
Nonparticipants	79.a[c]	141.9[c]	193.2	65.8[c]	106.9[d]	252.8
Overall Average of Participants and Nonparticipants	83.7	152.6	196.2	72.9	123.4	289.3
Not Available	87.3	169.2	192.8	91.2	138.0	201.6
National School Lunch Program Only						
Participants	85.6	168.3	189.4	85.9	153.2	180.6
Nonparticipants	88.1	170.7	200.6	90.4	125.0[c]	194.7
Overall Average of Participants and Nonparticipants	86.3	169.0	192.7	87.2	144.9	184.8
Not Available	85.8	165.7	184.3	90.3	151.8	213.6
Special Milk Program Only						
Participants	91.9	186.8	226.8	93.8	172.0	237.9
Nonparticipants	89.8	174.6	196.8[a]	93.5	128.3[c]	201.9
Overall Average of Participants and Nonparticipants	91.1	181.7	214.3	93.7	153.8	222.9
Not Available	85.0	163.8	189.5	88.5	144.8	205.6

(Continued)

APPENDIX TABLE C-4. (Continued)

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a. Standards used for evaluating nutrient intake for energy, protein, calcium, iron, vitamin A, and Vitamin C differ slightly from standards adopted by the World Health Organization and the Food and Nutrition Board of the National Academy of Sciences (see Appendix II of U. S. Department of Health, Education and Welfare, Dietary Intake Findings, United States 1971-1974, Vital and Health Statistics, Series 11, Number 202 (July 1977). Standards for all other nutrients used in the table are based on National Academy of Sciences, Recommended Dietary Allowance, Eighth Edition (1974).

b. Data presented in this table are for single-program participation status. Participants are defined as participants only in a single program (e.g., breakfast-only participants). Nonparticipants are defined as persons having the specific program avilable to them but not participating in the program or in any other child nutrition program. For example, nonparticipants in the school breakfast program are those persons reporting having a school breakfast program available to them but not participating in the program, nor in the school lunch or special milk program.

c. Indicates that the difference between participants and nonparticipants in the daily intake of nutrients as a percent of recommended daily allowance is significant at the 5 percent level.

d. Same as c but at the 10 percent level.

APPENDIX TABLE C-5. DAILY INTAKE OF NUTRIENTS AS A PERCENT OF RECOMMENDED DIETARY ALLOWANCE BY MULTIPLE AND SINGLE CHILD NUTRITION PROGRAM PARTICIPATION STATUS, HEALTH AND NUTRITION EXAMINATION SURVEY I, 1971-1974[a] (In percents)

Program and Participation Status[b]	Food Energy (Calories)	Protein	Calcium	Iron	Vitamin A	Vitamin C
Breakfast and Lunch	94.7	188.7	211.2	82.4	316.1	209.2
Breakfast Only or Lunch Only	85.8	168.5	189.5[c]	86.1	153.6[c]	182.3
Overall Average	86.2	169.3	190.4	85.9	160.3	183.4
Breakfast and Milk	99.0	236.9	208.2	132.4	114.0	281.1
Breakfast Only or Milk Only	92.1	187.1[a]	226.7[c]	94.0	172.5[b]	240.3
Overall Average	92.3	188.3	226.3	94.9	171.1	241.2
Lunch and Milk	85.2	174.6	205.7	91.5	162.9	190.2
Lunch Only or Milk Only	88.0	175.2	203.4	88.9	160.3	202.1
Overall Average	86.4	174.8	204.7	90.3	161.7	195.5
All Three Programs	116.4	266.1	224.7	123.3	166.0	176.8
Breakfast Only or Lunch Only or Milk Only	88.1	175.4	203.4	89.0	160.5	203.1
Overall Average	90.6	183.4	205.3	92.0	161.0	200.8
All Three Programs	116.4	266.1	224.7	123.3	166.0	176.8
Breakfast and Lunch or Breakfast and Milk or Lunch and Milk	85.4	175.0	205.8	91.4	165.4	190.8
Overall Average	87.6	181.4	207.1	93.6	165.4	189.8

(Continued)

APPENDIX TABLE C-5. (Continued)

Program and Participation Status[b]	Niacin	Thiamin	Riboflavin	Phosphorus	Mean
Breakfast and Lunch	80.9	104.9	168.0	150.9	91.9
Breakfast Only or Lunch Only	97.0	112.1	161.0	131.8	86.0[b]
Overall Average	96.3	111.8	161.3	132.6	86.2
Breakfast and Milk	116.6	135.2	167.5	137.4	91.7
Breakfast Only or Milk Only	106.6	124.6	188.5[b]	147.9	89.6
Overall Average	106.8	124.8	188.0	147.7	89.6
Lunch and Milk	94.2	110.8	170.7	137.5	88.0
Lunch Only or Milk Only	100.1[b]	116.6[c]	171.5	137.5	87.3
Overall Average	96.8	113.4	171.1	137.6	87.7
All Three Programs	102.8	146.8	189.6	168.3	90.2
Breakfast Only or Lunch Only or Milk Only	100.3	116.7	171.4[c]	137.6[c]	87.3
Overall Average	100.5	119.4	173.0	140.3	87.6
All Three Programs	102.8	146.8	189.6	168.3	90.2
Breakfast and Lunch or Breakfast and Milk or Lunch and Milk	94.0	110.8[c]	170.6	137.8	88.1
Overall Average	94.6	113.3	171.9	139.9	88.2

(Continued)

APPENDIX TABLE C-9. (Continued)

Dependent Variable (NAR/MAR)	Race and Sex[c]			Region[d]			Schooling Head and Sex		
	White x Male	White x Female	Black x Male	NE	MW	S	Male	Female	Age
Energy (calories)	19.461	1.103 (10.84)[a]	6.983	2.954	-5.727 (2.37)[b]	-5.535	—	—	—
Protein	56.001	1.469 (6.28)[a]	30.217	3.868	-18.183 (5.28)[a]	-21.003	0.473	1.279 (2.64)[b]	-8.983 (364.27)[a]
Calcium	—	—	—	5.883	-4.317 (5.23)[a]	-25.575	—	—	—
Phosphorus	-11.666	12.406 (20.40)[a]	-37.766	-1.867	-6.861 (3.68)[a]	-15.412	—	—	—
Vitamin A	—	—	—	—	—	—	5.040	2.271 (14.84)[a]	-3.946 (37.67)[a]
Thiamin	16.122	-1.974 (22.07)[a]	5.263	-1.139	-7.226 (4.67)[a]	-16.757	—	—	-0.887 (10.35)[a]
Riboflavin	—	—	—	8.650	0.354 (9.04)[a]	-16.684	—	—	-4.824 (220.2)[a]
Vitamin C	—	—	—	13.145	-10.322 (5.34)[a]	-41.956	—	—	—
MAR	—	—	—	1.371	-0.403 (5.68)[a]	-2.890	—	—	—

(Continued)